

Textiles and the Medieval Economy

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TEXTILES AND THE MEDIEVAL ECONOMY

Production, Trade and Consumption of Textiles, 8th – 16th Centuries



edited by

Angela Ling Huang and Carsten Jahnke

ANCIENT TEXTILES SERIES VOL. 16

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PRODUCTION, TRADE AND CONSUMPTION OF TEXTILES
8th–16th CENTURIES

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In Memoriam John Munro (1938–2013)

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1. Introduction. Conference: 'Textiles and Economy in the Middle Ages', Copenhagen, 19–21 April, 2012

Carsten Jahnke

Introduction¹

Clothes make the man. For the Middle Ages, no proverb rings more true. Cloth was not only a basic commodity at the time; it was also a marker of wealth and status. When the Lubeckian chronicler Arnold derided the Danes at the beginning of the 13th century, he did so by describing their attire:

On the honour of the Danes. The Danes who imitate the habits of the Germans, with whom they are familiar because they have lived in their neighbourhood for so long, are now adopting the dress and weapons of other nations. Previously, they dressed like seamen because they lived by the coast and were always preoccupied with ships, but now they clothe themselves not only in scarlet, particoloured and grey furs, but also in purple and fine linens. The reason for this is that they have all become very rich due to the fishing that takes place every year around Scania. While this fishing is taking place, merchants arrive from all of the surrounding nations with gold, silver, and other treasures to buy herring from the Danes. They catch the herring that at no cost to themselves, by the abundant grace of God, while the merchants offer the best they have in order to secure a good bargain – and sometimes even lose their lives in shipwrecks.²

There were differences not only in the style of tailoring, but also in raw materials (wool or linen), colour, types of weave, and

certainly in the quality of the cloth. We can assume that the cloth that Arnold mentions was homespun grey woollen cloth, in contrast to the imported, red and dark-coloured woollen and linen cloths. This example shows that from as early as the 13th century, textiles and trade were interconnected in an almost inseparable manner, and that the Lubeckian herring trade not only made the Danes rich – Lubeckian merchants also sold cloth to the Danes and made a fortune by doing so.

However, the medieval reality was certainly not as simple as it may appear based on this example, and neither is the research on this subject. Although most historians and archaeologists agree that textile production, trade, and consumption were some of the most important phenomena in the Middle Ages and beyond, textiles “have been at the forefront of industrial progress at least twice in the last thousand years,”³ as this industry was central to economic development in Europe. Despite the widely-recognised importance of textiles as a commodity, a social marker, or a repository of wealth, the subject has been rather sparsely researched. Historians have mainly investigated textile terminology (names and related characteristics described in textual evidence) and have tended to focus their interests on a few outstanding examples, such as the Flemish and later Dutch and English production of woollen cloth. Archaeologists mostly remain within their field of expertise, focusing on physical characteristics (especially in terms of yarn and weave types, and colour/dyes) and use (by whom and for what, as evidenced by surviving items of clothing in particular). Thus, although a great deal of literature exists on this topic in comparison to other commodities in medieval trade, much of it is biased, and textiles as part of the medieval economy of Europe remains unexplored for the most part – not to mention the fact that historians and archaeologists often live within their own worlds and science communities, and both groups use their own terminology and nomenclature, which can vary greatly between disciplines. On the basis of this, it is evident

that there is a need for an extensive exchange of ideas and knowledge, not only between disciplines and generations, different groups of established and younger researchers, but also between regions and different time periods. And so, in April 2012, Angela Huang from the SAXO-Institute and the author, with the generous assistance of the Centre for Textile Research of Copenhagen University (CTR), organised a three-day conference in Copenhagen, bringing together not only historians and archaeologists, but also established researchers and PhD students from a variety of European countries. This project was sponsored by the SAXO-institute and the CTR at Copenhagen University. It also received generous funding from the Danish Research Council, the Lillian og Dan Finks Fond and the Foundation of Her Majesty the Queen and the Prince consort, to which the entire research project is deeply indebted.

What, then, did we learn from three days of intensive debate and exchange of ideas? In general, it became clear that there is a long way to go with regards to establishing a lasting cooperation between archaeology and history as two fields with different and distinct research traditions. For example, issues related to technology illustrated how self-contained both fields are, making it almost impossible for researchers from the two fields to use each others' results. This conference helped to create a platform upon which a dialogue could be started. Going forwards, this will hopefully provide textile research with a better foundation from which to tackle the many issues that still need to be addressed. More specifically, it became apparent that the impressions provided by textual evidence and our assumptions about the stage of industrial development of an area do not necessarily harmonise with the available archaeological data. The archaeological research that was presented at the conference taught us the value of small finds, which can reveal the technical aspects of production and the quality of fabrics in a way other sources cannot. We should not only examine at the known textile

fragments from excavations and make assumptions about import trade and trade routes on the basis of these; we must also take into consideration the more unspectacular findings – spindle whorls, loom weights and needles – as these document the weaving process.

By analysing the technical possibilities of these items based on their weight and construction, Eva Andersson-Strand has been able to provide a more exact interpretation of the Viking-age textile finds from Hedeby, Birka, and Löddeköpinge. Her results show that the manors and Viking towns of Scandinavia were able to produce high quality cloth. As a result, many theories about trade and trade routes in Europe at that time must be re-analysed. There is also a second important point to make with regards to this. Cloth in the Viking age was standardised and had to be so in order to be functional. Using the example of the production of sail-cloth, Eva Anderson Strand shows the impact of production methods on the production process. The same kind of standardisation and industrial production is also shown in the work of Michèle Hayeur Smith, who uses the example of Iceland. Icelanders produced not only a currency made of cloth (the *vaðmál*) they also changed the patterns and widths that they produced according to demand in Britain and on the continent. In the period between 874 and the 17th century, cloth production in Iceland was rapidly standardised and remained highly productive, and was more important for the island's economy than the export of dried fish, for example.

Similarly, Ingvil Øye analyses textile production between 800 and 1300 AD in the central part of Norway – the counties of Hordaland, Sogn, and Fjordane at the Sognefjord. By examining tools, textiles, and environments, she draws a multifaceted picture of rural textile-production in the Middle Ages, with the production of both exclusive and everyday textiles. And, once again, her research points in the same direction as Eva Strand's: the very high quality textiles found in Viking Age burials in Western Norway may have been produced locally. The same question is

explored by Gale R. Owen-Crocker, who takes as her starting point a school-book text written by Ælfric in around 1000, which states that *purpurum et sericum, pretiosas gemmas et aurum, uarias uestes et pigmenta* are some main items traded by merchants at that time. By analysing various findings, she also concludes that some textiles arrived in Anglo-Saxon England as imports, but that most utilitarian cloth and some higher quality materials were probably manufactured locally. This also applies to some unusual woollen and linen textiles, which may have been produced in the British islands.

These four papers show that spinners and weavers in towns in the North, as well as those in the countryside, were able to produce yarn and cloth of high quality. These results shift our attention from prominently distant production centres and import trade to a local textile production, which went beyond the needs of the individual household or manor. When the technical aspects of yarn and textile production are taken into consideration, many beloved old theories must be re-interpreted in favour of a more balanced understanding of the distribution of textile production and trade at the time

Although we have been forced to re-evaluate the development and importance of commercial textile production in Northern Europe in this way, the fact remains that some fabrics, such as silk (which is usually considered to be a luxury textile), had to be imported. Two papers have been dedicated to the silk trade and silk consumption in the Viking Age: Marianne Vedeler traces the pathways of silk in Scandinavia. She shows that the silk imported to the North came both from Central Asia and Byzantine. Thus, she states that silk trade and exchange of fashion ideas between the main areas of production make it even more plausible that more than one trade route was used. Silk, like many other trade items in the Middle Ages, was part of a complex and multidimensional system in which merchandise and gifts changed hands. But how valuable was silk then and in later periods? This

question is the main point dealt with by Gitte Hansen. By analysing the silk embroideries on leather shoes from the 11th–13th centuries, which were found in Bergen/Norway, she has shown that silk yarn was not as expensive as one may imagine. Townspeople in Bergen were able to afford silk embroideries on their shoes when these were *en vogue*. This indicates that the use of silk was a matter of fashion sense more than a question of social status. Silk embroideries were a luxury that was available to everyone.

When dealing with archaeological data on the textile trade, a central issue is their actual informative value. Of course, lead seals testify to the existence of a trade with textiles. However, beyond this, archaeological methods quickly reach their limitations and are mainly able to suggest where a cloth was produced and how it arrived at the site of consumption. In recent years, however, new methods have been developed from which archaeological (and historical) studies of the textile trade in particular will greatly benefit: Archeometry has been shown to provide firm evidence of the long-distance movements of textile materials. This technique has enormous future potential, but is still in its infancy. Other archaeological papers tend to discuss the movement of textiles based on stylistic factors, the range of (mainly) woollen fabrics found in a locality, or calculations of textiles relative to population densities and other metrics. The preliminary findings of the archeometry seem to call some of these techniques into question.⁴

Archaeological papers show not only that production and trade were interwoven with each other, supplying medieval customers with a variety of fabrics and qualities, they also point towards a complex and multidimensional distribution system, which connected the different parts of Europe with each other and also linked Europe and Asia. In this respect, is it questionable whether only the most valuable textiles were items of trade, or whether there was also a trade in mediocre textiles. This is one of the focal points of Heidi Sherman's analysis of Novgorodian flax and linen

production in the Middle Ages. By bridging the gap between archaeology and history, she is able to draw a long historical line from the 14th to the 16th century, and also to correct and reclassify certain archaeological and historical misinterpretations. Furthermore, she reminds us that everyday goods such as flax and linen were much more important in everyday life than more spectacular and attractive goods, such as fur and gold.

A paper by the late John Munro, who analysed the development of the Florentine production of woollen cloth from 1320 up to 1420, shares this perspective. By considering many internal and external factors – such as the plague and the crisis of the 14th century, rising taxes in England as a result of the one hundred years war, or the development in transaction-costs of international trade – he traces the development of the Florentine Arte di Calimala and Arte della Lana textile production from their beginnings through their peak in the early 14th century to the cessation of production of English wool textiles at the start of the 15th century. In doing so, John Munro is able to link the economy of Northern Europe to that of the Mediterranean in a new way. Similarly, Kilian Baur outlines a connection between south and north in a paper which analyses the trade of fustian (*barchent* in Low German; a mixture of linen and cotton) from Swabia to Denmark and the Baltic. For the first time, he shows that this special type of cloth from the Fustian district in Swabia was traded far up into the north for use in servants clothing via the central markets in Upper-Germany. Whereas the Italian and Southern German production centres for woollen cloth and fustian are well-known suppliers of textiles for long distance trade, the Hanseatic textile trade does not usually include trade in textiles from the Hanseatic area. In the fustian trade that Kilian Baur describes, Hanseatic merchants are described as brokers between producers and consumers. However, Rudolf Holbach also shows that the Hanseatic area was a large-scale producer and exporter of woollen cloth. Contrary to the earlier understanding of the Hanseatic area

as unproductive, Holback portrays the Hanseatic region as a producer that should not be underestimated. His article places centres such as Lubeck, Thuringia, the Rhineland, the Netherlands, and Prussia on the map of woollen-cloth production areas. Furthermore, Jerzy Maik completes the picture by describing cloth production in the East; specifically, in the kingdom of Poland – from Silesia in the west to Prussia in the east. By analysing archaeological material in a new way, he shows that from the end of the 11th century onwards, cloth production developed in the cities of the Polish kingdom due to the use of highly efficient, modern foot-operated treadle looms. In a similar vein, Angela Huang analyses Hanseatic linen production – an area of textile crafts that has only been sparsely researched by historians, and which has been omitted entirely by archaeologists, since flax fibres do not usually survive at archaeological sites. By analysing the English custom roles, she is able to show both the importance of Hanseatic linen for the English market and the developments and shifts in its production and production areas.

These articles, which focus on production centres that have previously received little attention, show that the medieval textile trade was by no means trade characterised by a high price level. Central European textile production also supplied both expensive textiles, or *price-makers*, and generic textiles, or *price-takers*, for late medieval long-distance trade. The development of a standardised production by means of guild statutes and quality assessment contributed to the widening of the range of trade products available throughout the Middle Ages. These articles provide important amendments to the map of textile production areas in the Middle Ages. In addition to the known production centres in north-western Europe, southern Germany and Italy, we must now include the textile areas in northern Germany, Poland and Prussia. However, this picture is still by no means complete. Nevertheless, it does serve to emphasise our lack of knowledge about the geographical distribution and variety of commercial

textile production in the Middle Ages, both with regards to fabrics and to variations in quality.

However, production and trade are only two aspects of textiles and their role in the medieval economy. Since textiles were not traded as clothing or directly sold to their final consumer, and because even sources about noble textile consumption scarce, we tend to lose sight of the consumer when investigating the textile trade. But these questions remain: How did the consumer became interested in and supplied with the vast range of textiles produced for trade? How did the Danes become interested in foreign cloth and how did they come to perceive this cloth as higher status than their own? And where did they acquire the newest fashions? These questions are at the centre of the last three papers described in this section. Thomas Ertl and Michael Rothmann analyse the noble consumption of fine cloth at the Frankfurt fairs. Using the example of the Landgraves of Hesse and the Counts of Ysenburg via an analysis of their accounting records, they illuminate the noble consumption of textiles in the late Middle Ages. Furthermore, by examining the fashion drawings used by tailors at the time, they illustrate how consumption was stimulated at that time. This article sheds light on one of the available sources regarding pre-modern consumption; that is, household accounts. This could be supplemented by merchants' accounting books and testaments which, if employed in similar studies, may greatly contribute to our knowledge about medieval textile consumption.

The stimulation of consumption and supply chains are also the focal points of Stuart Jenks' theoretical considerations. He introduces the idea that there was a revolution of distribution in the 15th century at the latest, and that this paved the way for all of the subsequent economical 'revolutions' in the 16th and 17th centuries. Using the example of the late-medieval pepper trade, he shows how new economical items followed the proven paths of marked trade, something which has important implications for the textile trade, as well as for other innovations of trade and

consumption in later periods.

Both the conference and the articles outlined here illustrate how archaeologists and historians cover the same ground, even though they look at it from different angles. However, it is also clear that some points still require further and deeper analysis. First, new knowledge can be generated and old misinterpretations can be illuminated when the material, methods and terminology of archaeology and economic history, and of German, Scandinavian and Anglophone researchers are checked against each other. We must be critical and ask ourselves the following question: What do national or academic traditions justly or unjustly take for granted when discussing textiles, their appearance, value, and purpose? Secondly, as a consequence of the new results presented in this volume, we must question many dearly-held ideas about textile production and trade, and re-examine the material carefully. Which kinds of textiles with which characteristics were actually produced? Which factors influenced production – shifts in the use and availability of raw materials or weaving techniques, technological innovations such as the replacement of the vertical warp-weighted loom with the horizontal loom? Is taste also a relevant issue? And if so, to what extent? In order to answer these questions, new materials and methods must be employed, as illustrated by the articles compiled in this volume. Thirdly, we must fill the gaps in the chronology of the development of textile production and trade. We must also fill the remaining holes on our maps of European production centres and in our knowledge about the nature of medieval textiles. We must take into consideration the individual production sites and their products over time, the tools and raw materials used, as well as the social and legal frameworks for production. We must also link production and consumption – from the seller via the wholesaler to the retailer and the final consumer – as all of these shape textiles as a commodity and the system surrounding this key medieval industry. Who was the target group for which fabric or quality,

and why? Does it make sense to talk about an anonymous marked or not? Was standardisation a late-medieval market invention or was it inherent in the system from the very beginning? These are tasks which can only be carried out in an ongoing dialog between archaeology and history, and between the different traditions in the European countries and beyond. At this conference, we succeeded in placing the first building blocks for a dialogue between the different research areas, and our hope for the future is that this will develop into a fully-fledged bridge between the disciplines. Neither of the two disciplines can function optimally without knowledge from the other, just as the Danes could not have acquired the new woollen (if worsted or cloth is not clear until now), purple and fine linen cloths without interacting with German merchants and foreign weavers. The Danes would not have worn the foreign cloth if they had not had an idea of its quality and value and the foreigners would not have been able to sell their items without technical knowledge of markets, market behaviour, as well as knowledge about weavers, wool and sheep. This book, along with the conference, will hopefully represent the first steps on a long journey that will bring two disciplines closer together. Even now, one might say that we are already wearing the same fabrics – but that we were not aware of this until now.

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2. Textile Production, Organisation and Theoretical Perspectives on Trade in the Scandinavian Viking Age

Eva Andersson Strand

Textile production

Textiles from Viking Age Scandinavia derive, in general, from burials. And even though the number of textiles is high, they are often very fragmented and no complete costumes are preserved. Often, these fragments are only preserved together with metal objects.

A huge number of textiles were found in the Viking towns of Hedeby (AD 708–1066), today known as Haithabu (Germany, but formerly in Denmark) and Birka (AD 750–975), Sweden ([Fig. 2.1](#)). Both the historical sources and the archaeological excavations testify to places of great international significance, with several important economic activities, such as trade and craft.¹ The analyses of the textiles from Hedeby and Birka have yielded unique knowledge of various costume details, as well as of raw materials, techniques and manufacture.²

The textile finds from Hedeby are unique by virtue of the quantity of finds, but also due to textiles having been found in several contexts; in the cemetery, but also in the settlement site as well as the harbour. Comparisons between textiles from burials and textiles found in the settlement/harbour area in Hedeby demonstrate that they are closely related technologically and

represent the same types of production and possibly costume tradition. However, textiles from the graves generally are of a higher quality and when interpreting dress, it is essential to be aware that textiles found in graves also reflect mortuary customs and beliefs and not necessarily everyday dress.

From Birka, approximately 4800 textile fragments are preserved, all from the c. 1100 excavated burials, primarily from chamber graves. The most detailed analyses on the Birka textiles were carried out by Agnes Geijer in the 1930s.³ She published an analysis of some 5% of the textiles in 1938.⁴ It is not only the amount itself but also the number of different types of textiles that are very high (Fig. 2.2) clearly indicating a desire for high quality textiles made in different techniques. The analysis demonstrates that the textiles were made in various techniques, such as tabby and of elaborate twills and in various qualities from very coarse textiles to exclusive fabrics in complex techniques and many threads per centimetre. The materials used were primarily wool and flax but silk and other materials like gold and silver threads too, were utilised.



Fig. 2.1. A. Birka, B. Hedeby. Drawing by Annika Jeppsson; © CTR and A. Jeppsson.

The Birka textiles and their provenance have been published. Since 1930, there has been an on-going debate, based on different types of textiles from various Scandinavian Viking Age settlements and graves – foremost those from Birka – regarding the textile types imported to Scandinavia, and their provenance.⁵ The focus has been on the appearance of the textile: the weaving technique and fibre quality. Different types of textiles were compared with similar textiles from other parts of the world, from Syria to Britain via Norway and Friesland. The main basis for determining where the textiles were produced was the absence/presence of the same and/or an analogous textile type at different sites. Equally salient in this discussion is the degree of standardisation and whether the textiles have the character of being sought after goods, i.e., whether they had been professionally manufactured.⁶

Material	Designation	No. of fragments	Percentage
Wool, tabby and twill	W	1075	22.4
Linen/hemp (tabby and twill)	FH	800	16.7
Silk twill	S4	750	15.6
<i>Passementerie</i> and borders	P	650	13.5
Tablet-woven bands with silver weft	sB	600	12.5
Pattern weaves, brocades, or tapestry-like weaves	M	280	5.8
Embroidery with gold and silver thread	St	140	2.9
Plaiting and sprang	D	125	2.6
Tablet-woven bands with gold weft	gB	100	2.1
Down	T	100	2.1
Fur	T	90	1.9
Taffeta silk	S1–3	45	0.9
Unidentified textile fragments		70	1.5
Total no. of fragments		4,800 (4,825?)	100

Fig. 2.2. Survey of the textile finds from Birka. The designation refers to the German abbreviations used by Geijer (1938); after Hägg 1986.

Agnes Geijer compared some textile types from the Birka graves, with modern tweed or homespun, and suggested that these fabrics, like the fine worsted, are imported because they have a standardised, craftsmanlike quality and seem to have been both dyed and finished (pressed or lightly fulled).⁷ Lise Bender Jørgensen later termed this group of textiles *the Hessens/Elisenhof type*. She suggested that Friesland could be the provenance for this type of textile. Her arguments are based on the high number of similar textiles and also spindle whorls and loom weights and large quantities of sheep bones from this region.⁸

Another type of textile whose provenance is debated is a broken twill/diamond twill, called *the Birka type* by Lise Bender Jørgensen. In Geijer's work from 1938 she proposed that this textile type was imported from Friesland but later she suggested Syria.⁹ In 1969 Carus-Wilson wrote that it was most likely that these textiles were manufactured in England and in 1986 Bender Jørgensen suggested that western Norway could be a possible place of origin for the Birka type. Bender Jørgensen based her arguments on the number of similar textiles and that "... a great many of the Norwegian women's graves contain weaving implements: loom weights, sword beater and wool combs. These objects could be interpreted as symbols of the women's status as producers of an important trade commodity".¹⁰ Even other textiles like the linen cloth, the tablet-woven bands, the passementerie have all been considered to be imports.¹¹

The conclusion, according to these results, is therefore that only the coarsest woollen fabrics were produced in Birka while all other textiles were imported.

Analyses of other Scandinavian Viking Age textiles yield the same results concerning raw materials and weaving techniques even if some of the textiles, especially from Birka, are of a significant high quality.¹² According to Bender Jørgensen, there are three main groups of new types of textiles during the Late Iron

Age (Merovingian and Viking Ages). The first is balanced tabbies of which a large part could be linen, 2/2 twills usually Z/S spun, including a medium quality of Z/Z that especially occur in Norway. These textiles may be termed woollens, the warp is, in general, hard spun and the weft soft, and were probably quite soft and warm. The third group of textile tabbies, 2/2 twills, broken twills and diamond twills had a definitely uneven proportion between warp and weft and was made of evenly smooth thin yarn, similar to worsted.¹³

Textile Production

Textile Tool Analyses

Analyses of textiles tools, however, contradict the conclusion that, in general, all textiles were imported to Birka and also Hedeby. Here the focus has been on the occurrence of textile tools and the type of production they would have been suitable for, in combination with results from textile analyses.¹⁴

In total, 2318 textile tools from Birka and 5235 tools from Hedeby, a total of 7553 tool finds, were recorded (Fig. 2.3). These comprise spindle whorls, loom weights, bone needles, needle boxes, very thin metal needles, similar to modern sewing needles, tablets for tablet weaving and scissors.¹⁵

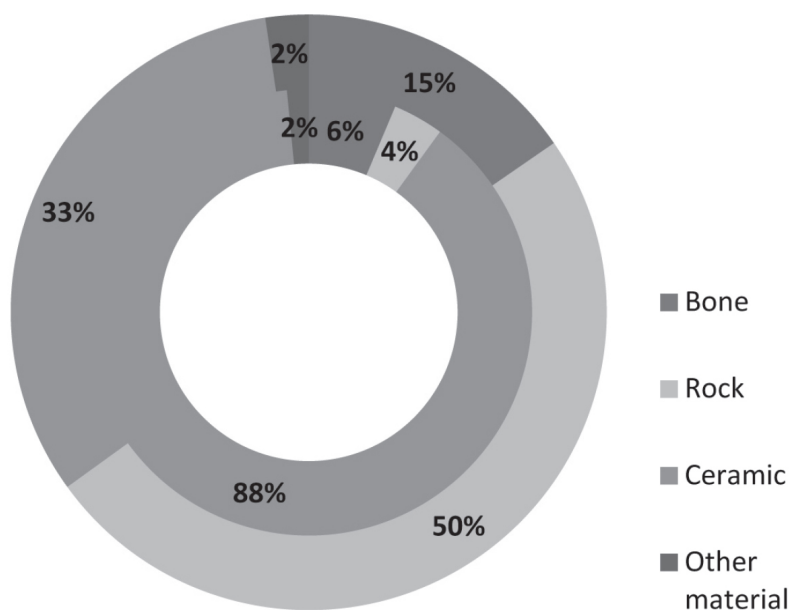
A comparison of the materials from which spindle whorls were made indicates that ceramic whorls were most common in Hedeby (88%), while the largest group of spindle whorls in Birka were made from various types of stone (50%) (Fig. 2.4). However, the registration shows that despite the great difference in the material, the weight is concentrated in the same groupings (Fig. 2.5).

Spinning tests with different types of spindle whorls have demonstrated that, it is the fibre quality, the spinner's experience and the size/weight of the spindle whorl that affect the outcome, the spun yarn. The difference can be explained by the fact that the lighter the spindle whorl, the less fibre is used per metre; the lighter the spindle, the lighter/thinner the thread; the heavier the

spindle whorl, the heavier/thicker the thread. The difference in thin and thick yarn can be expressed in terms of the weight/diameter of the thread. A light/thin yarn has, in general, a small thread diameter, while a heavier/thicker yarn usually has a larger thread diameter since it contains more fibres.¹⁶ As is demonstrated in [Figure 2.5](#), the wide distribution of the weight of spindle whorls suggests that yarn could have been produced in several different thicknesses. Even if the whorls from Birka vary slightly more in weight and diameter, the results clearly demonstrate that there were spinning tools in Birka and Hedeby for producing all the qualities of textiles of wool and linen evidenced in the analyses of the textile finds. Furthermore, they confirm that the yarn production in Birka and Hedeby was similar.

	Birka	Hedeby
Spindle whorls	429	939
Loom weights	Complete 69	Complete 514
Bone needles	Fragments 1406	fragments 3480
Total number	2318	5235

Fig. 2.3. The number of spindle whorls, loom weights and bone needles recorded.



**Spindle whorls from Birka (outer ring) and Hedeby (inner ring),
percentage per material, N=1,328**

Fig. 2.4. All registered spindle whorls from Birka and Hedeby, by material.

Weaving a Fabric

A fabric is the result of weaving two thread systems, which cross each other at right-angles. One of the systems, the warp, runs parallel to the side of the loom and is kept stretched during weaving. On a warp-weighted loom, the vertically hanging warp threads are kept taut by the weight of the attached loom weights. The other system, the weft, runs alternately over and under the warp threads.¹⁷ Different types of fabrics can be produced on a warp-weighted loom depending on the type of weaving technique (tabby, twill etc.) and the number of rows of loom weights used.

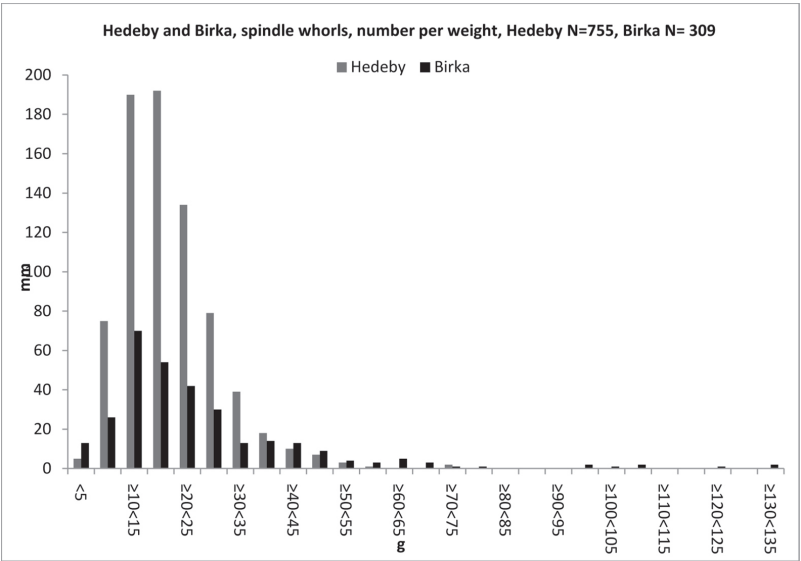


Fig. 2.5. All spindle whorls from Birka and Hedeby with preserved weight, by weight.

Weaving tests with loom weights of different weights and thicknesses have demonstrated that different loom weights are suitable for various types of fabrics.¹⁸ All completely intact loom weights from Birka and Hedeby have been analysed and the results clearly demonstrate that the loom weights in Hedeby and Birka could have been used to manufacture many of the types of textiles found on the sites.

To conclude, the analyses of the textile tools from Birka and Hedeby clearly demonstrate the production of various types of textiles in many different qualities, from simple coarse tabbies to more general and commonly found twills and intricately woven textiles in a high quality with many threads per cm. It is evident that most of the tools could have been used for the manufacture of general to high quality textiles, i.e. those types of textiles that hitherto have been considered to be imported. Additionally, only a few of the tools are suitable for the production of very coarse textiles which could exclude a larger production of, for example sail- or tent-cloth.

The analyses also suggest a similar textile production in Birka and Hedeby and the basis for this is the appearance of the same type of textiles, the high number of textile tools that were suitable for the same types of production. It is noteworthy that it is primarily the textiles from Birka that have been suggested as being imported while the textiles from Hedeby are rarely discussed from this perspective.

Whorl weight	Rod	Wool type	m/10 g incl. wastage	Threads/cm in a twill
5 g	S	1C	201.5	c. 32.5–37.5 threads/cm
5 g	S	2C	179	c. 27.5–32.5 threads/cm
10 g	L	1C	169.5	c. 25–30 threads/cm
10 g	L	2C	101	c. 22.5–27.5 threads/cm
20 g	L	1C	123	c. 17.5–22.5 threads/cm
20 g	L	2C	59.5	c. 17.5–22.5 threads/cm
30 g	L	1C	71	c. 10–15 threads/cm
30 g	L	2C	39	c. 7.5–12.5 threads/cm
5 g	S	1M	140	c. 30–35 threads/cm
5 g	S	2M	117	c. 25–30 threads/cm
10 g	L	1M	123	c. 22.5–27.5 threads/cm
10 g	L	2M	92	c. 20–25 threads/cm
20 g	L	1M	108	c. 15–20 threads/cm
20 g	L	2M	52	c. 15–20 threads/cm
30 g	L	1M	60.5	c. 7.5–12.5 threads/cm
30 g	L	2M	39	c. 5–10 threads/cm
10 g	L	1W	53	c. 10–15 threads/cm
10 g	L	2W	52	c. 12.5–17.5 threads/cm
20 g	L	1W	41.5	c. 5–10 threads/cm
20 g	L	2W	39	c. 10–15 threads/cm
30 g	L	1W	30	c. 5–10 threads/cm
30 g	L	2W	26	c. 2.5–7.5 threads/cm

Fig. 2.6. Results of spinning experiments, with spindle whorls and spindles reconstructed after archaeological finds in Hedeby, and an evaluation of the suitability of the yarn in thread count in a 2/2 twill. Spindle rod: S (short) = 13 cm, L (long) = 25 cm. The wool chosen came from a Norwegian spælsau. Two fleeces from two individuals within the same breed were chosen: 1 = fleece 1, 2 = fleece 2. C = combed wool (hair), M = mixed wool = hair + under wool, W = under wool. (Andersson 2003a, 26).

Conversely, studies of tools from Viking Age agrarian settlements in Scania (southern Sweden) but also in Birka's hinterland give a slightly different image of textile manufacture, demonstrating a production of more general Viking Age textiles.¹⁹

Another interesting place is Löddeköpinge, a site in south-west Scania which was occupied from c. AD 800 to the late medieval period. Here, a high number of pit-houses were excavated yielding an exceptional large amount of textile tools. Textile tools from the 9th century were recovered from the *floor layers* in 56% of all pit-houses (38 of 67). However, the number of houses with textile tools from the 10th century increases to 88% (46 of 52 houses). It is pertinent to note that during the 10th century a large Viking Age fortification related to the Danes and the Danish kings was built close to the settlement. The building of this settlement alone would have demanded a high amount of labour. In Löddeköpinge no evidence was found for more exclusive craftwork, e.g., bronze casting, comb making, instead there is clear evidence for blacksmithing and a proportionally (compared to contemporary sites) large textile production.²⁰ The analyses of the tools give an image of the Viking Age as having more general textile manufacturing, including the production of coarse textiles. In one of the houses, a weaving beater of metal was recovered and experiments have demonstrated that this type of tool is particularly efficient when weaving coarser wool qualities, for example sail and tent cloth but also fabrics for outer-garments.²¹ In one experiment, all tools (spindle whorls, loom weights, a metal weaving beater and a pin-beater) from a pit-house were reconstructed and tested, the produced quality was a coarse textile suitable for a sailcloth. This suggests that craftspeople in Löddeköpinge produced textiles to meet not only the demand to cover the need of textiles for the household but also a surplus of textiles.²²





Fig. 2.7. A 2/2 twill weave woven on a warp-weighted loom with four rows of loom weights. The fabric has 15 warp threads and 15 weft threads per cm. Fifteen warp threads are attached to each loom weight (i) the warp-weighted loom with the setup (ii) the four rows of loom weights (Courtesy of Ulla Lund Hansen and the Vorbasse project; photo by Linda

Olofsson).

To conclude, textile tools are commonly found on all types of Viking Age settlements. It is certainly difficult to discuss the size of the production based only on the number of tool finds. However, by analysing and discussing these tools from the perspective of the type of production they would have been suitable for, new insights that shed light on this period may be gained.

Moreover, it is plausible that some of the high quality and standardised textiles were produced in Scandinavia, for example in the Viking towns and or manors. These types of sites often have a documented specialised craft production, such as bronze casting and comb making, and it would therefore not be surprising that textiles, too, could have been manufactured here. This is also supported by a study of the textile tools from the Viking port of trade Åhus in Scania.²³ Here, a large number of textile tools suitable for the production of high quality textiles was recovered along with evidence for specialist production of other crafts, such as comb making.

The analyses demonstrate that the textile production varies depending on the site studied. On rural sites, the results indicate a varied production of more commonly found textiles and, in general, not those of the most exclusive types. Furthermore, some larger settlements, such as Löddeköpinge, seem to have had a large-scale production of, what for the Viking Age was more commonly found textiles.

Household production	Household industry / putting out system
The production solely covered the household's own needs	The production scale was beyond the needs of the producers
Household members possessed general knowledge and skills	It was organised at household level
Raw materials were commonly accessible	The household members possessed general knowledge and skills
They did not work full time on the production of textiles	There was a surplus of raw material and/or the buyers gave them raw material
	They did not work full time on the production of textiles
Attached specialist production	Workshops
High quality products, such as those used for desirable gifts were produced	Direct production for the market
Production was performed by craft specialists and their skills were enhanced by full-time occupation within textile production	The items were practical and standardized
Craftsmen/women were supported by and dependent on patrons	The production volume was high
They worked on a full-time basis	There was a high demand for products
The raw materials were of a better and/or higher quality	Craftsmen/women worked on a full-time basis

Fig. 2.8. Model of four different levels of production.

Organisation

The results of the analyses of the textiles and the textile tools indicate a likelihood that, already during the Viking Age period, textiles were produced in different organisational modes, partly depending on the types of textiles that were produced.

In earlier studies, a model, consisting of four different levels of production was proposed: the four levels being *household production*, *household industry* and/ or *the putting out system*, *attached specialised production* and *workshops*²⁴ (Fig. 2.8).

It is evident that most textiles, e.g., those for daily use, were produced in a *household production mode*. Based on the reconstructions, chiefly of archaeological textile finds from Hedeby, of one male and one female outfit, two complete Viking Age costumes (one male and one female) required about 6 kg of wool and 23.400–42.600 m depending on yarn quality and calculated on 12 threads per cm (the average of the number of threads per cm on the reconstructed fabrics) (Fig. 2.9).²⁵

Other textiles in high demand, such as sailcloth could have been produced in a different organisational mode. The production of a sail demands a considerable amount of raw material and time and can be defined as a standardised production. The manufacturing of sailcloth (like the ships themselves) must, therefore, have been well organised; to have completed a sailcloth, it has been calculated that it would have taken at least two years' full-time work for one person to produce a sail of 25 m².²⁶ It is, therefore, reasonable to believe that the production of a sail is likely to have been organised in a household industry/putting out mode and that several craftspeople, including spinners and weavers were involved. A sail is woven in long lengths and then sewn together and it is crucial that the quality of fabric (including the spun yarn) is the same. Thus it is highly plausible that the craftspeople involved in this production worked with the same processed type of raw material and the same type of tools. It is

difficult, in archaeological material, to separate this type of production from production for daily use, since the same type of tools could also have been used in the latter production. However, the analyses of the tools from Löddeköpinge indicate this type of organisational mode.

Male costume	Weight	Weaving technique	Threads/cm
Mantle	1400 g	2/2	9/9
Over-tunic	880 g	2/2	19/11
Kirtle	430 g	2/2	8/8
Trousers	380 g	diamond	12/12
Leggings, 3.6 m	135 g	chevron	22/11
Total weight 3,325 kg			
Female costume	Weight	Weaving technique	Threads/cm
Mantel	1200	2/2	9/9
Brace dress	450 g	diamond	14/12
Kirtle wool	430 g	2/2	18/18
Leggings	170	2/2	11/7
Total weight 2,250 kg			
Total weight one man's + one woman's costume: approx. 5.5 kg			

Fig. 2.9. Estimated amount of wool for one male and one female costume, based on finds from Hedeby. When the thrums are included, the total weight is c. 6 kg.

Textiles that demand special skills and or very exclusive raw materials are likely to have been produced in an attached specialist organisation. The tradition of having a textile workshop connected to, for example a manor was common in Europe, including Anglo-Saxon England, also in earlier periods. Here, there is evidence for *Gynaecier*, a workshop where textiles were produced, from the preparation of fibres to finishing. During the later Anglo-Saxon period, these workshops, in general, moved from the manors to the towns.²⁷

The end of the 9th century saw the development of a more organised production process in the Anglo-Saxon towns; the questions of who was in control of the production has been subject to scholars debate. One interpretation is that it is still the landlords who remain in control and that they had supplied the craftspeople with raw material and paid for their work; this interpretation is based on production being close to new trading centres.²⁸ Later, in the early medieval period, textile production becomes even more specialised and it is not any longer a single workshop that undertakes all the different processes.²⁹

In Scandinavia it is evident that, for example, exclusive metal work can be connected to this type of settlement.³⁰ Regrettably, the production of textiles has hitherto not been investigated from the same premises, although there are clear indications for a specialist textile production in some of these types of settlements.³¹ Furthermore, it is plausible that while some of this production was moved to centres like Birka, Åhus and also Hedeby, it was still under the control of the landlords.

Finally, it is evident that various modes were combined within the same household unit. For example, even if the settlement had a surplus, to produce textiles in a household industry mode or if the household members were working in a putting out system, the textiles for daily use, too, would also have been manufactured. If a craftsperson was working in an attached specialist mode, she or he

could also produce textiles for everyday use.

Textiles Trade and Exchange – some Theoretical Perspectives

It is evident that textile production, trade and exchange are rarely discussed with the same theoretical perspectives as other crafts, nor have the results of the textile analyses, with some exceptions, been related to the finds of textile tools or the archaeological context in general. The first question to be asked is why textiles were imported, was it, for example because of a lack of skill or raw-material. The written sources³² demonstrate that textiles, in general, were considered as valuable, and furthermore, that textiles were often given as gifts.³³ However, many textiles from previous periods are also made in complicated techniques and high quality raw material. Were these imported too?³⁴ Another question is, therefore, which textiles were considered as valuable during this period. How can we, today, separate an exclusive and valuable textile from one that was not considered valuable for a person during this time period? Was it, for example, only exclusive textiles, such as silk fabrics, that circulated within the known and visible/detectable exchange/trade systems, or could standardised, everyday textiles, such as a sailcloth, also be a part of these trading networks? In the sagas, it is often mentioned that garments, and on some occasions, sails, are bestowed as gifts. It is also essential to consider, for instance, who the producer was and if a skilled craftsperson was coveted, and valued, Moreover, who was the recipient? Did exclusive and well-made textiles give a person a special family and a household status? And finally, how did textiles travel?

As mentioned previously, scholars have argued that textiles were imported to places like Birka and even if it is plausible that most of the textiles were produced here, this does not exclude the trade and exchange of textiles. However, it is important here to integrate the theoretical framework on Viking Age trade and

exchange.³⁵

In recent years, Ingrid Gustin has argued that the ports of trade, Birka and Hedeby can not only be regarded as centres for politically controlled and administrated trade, she also emphasises that ports of trade are sites where several different types of exchange, both politically motivated and controlled commodity exchange and trade for personal profit, take place and, furthermore, that the principles of exchange that occurred at Birka and other Viking ports of trade were interlinked.³⁶ This interpretation allows several different levels of textile movement, e.g., textiles could have been bestowed as gifts, traded and exchanged, or used as payment for services rendered.

A question of crucial significance is whether the textiles were traded within a short distance or formed part of a long distance trade/exchange. As mentioned earlier, different places have been suggested for the import of textiles, primarily from faraway places. Only Bender Jørgensen has suggested a short distance trade but her argument, consisting of the high number of similar textiles, textile tools and quantities of sheep bone, could also be valid in the case of, for example Birka, Hedeby and Åhus. The discussion on what textile tools from graves actually reveal about the deceased is also complicated. It should also be noted that burial customs are different in Norway than in the Mälär Valley (Sweden); the Norwegian burials do in general contain more tools for all types of crafts.

The focus of imports has been on the textiles that are considered to be of a high quality and their standardisation, and not on the need for these types of textiles. The results from the analyses of the tools demonstrate that it is primarily in the Viking towns and possible manors that such a production took place. If it were the elite living in the rural regions that controlled the production in economic centres, the textiles produced here might have been used in an exchange or trade system, given as gifts but would also have supplied the elite with exclusive textiles for their

own needs.

Furthermore, new perspectives will be gained if fabrics for everyday use and, for example sailcloth are included in the discussion of trade and exchange. It might be possible that these types of textiles, too, were traded or exchanged for valuable goods by people working in the towns and or in the surrounding regions. However, it should be noted that the tool analyses on the materials from Birka, Hedeby or Åhus do not support a large production of these qualities of textiles.

Concluding Remarks

If, how and why the textiles moved from their place of production in Viking Age Scandinavia is still an open question that needs to be further explored. In the Viking Age, a textile was a result of complex interactions between resources, technology and the society. The catalysts for this interaction were the Vikings' needs and desires, but also the preferences of their society, which in turn influenced the exploitation of resources, development of technology and trading networks. Conversely, the availability of resources and the state of technology condition the choices of individuals and society. The totality of these interactions is expressed during textile production and in textile trade/exchange. By integrating established, innovative and new methods of textile analysis with a theoretical framework, the results will illuminate the complexity and variety in textile trade, exchange and production and provide us with new and important insights into Viking Age society.

This will enable us to discuss how easily people accept new types of products and new design. Did they copy new techniques and/or did they adapt old techniques into a new design? Did a new costume design or a new type of textile affect people in their daily lives? Could results from new textile analyses, together with the theoretical framework, provide insight into how the Vikings understood identity in their own region but also in other regions

and communities?

Additionally, there are different dimensions when studying textiles. It is, indeed, essential to analyse and compare the weaving technique, the fibre and quality, but it is equally important to explore 'textiles' from many perspectives and with different approaches by integrating established and innovative textile analysis methods within a theoretical framework.

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3. Weaving Wealth: Cloth and Trade in Viking Age and Medieval Iceland

Michèle Hayeur Smith

At the edge of the western world, Iceland in the early medieval period was no less engaged in international trade than other northern European centres of the time. Settled in AD 874, Icelanders had created an independent republic by AD 930, through the integration of its scattered chieftainships under one general assembly, the Althing. The period AD 930–1262 is known as the Commonwealth period, and while short lived, it witnessed the proliferation of a body of medieval literature and documents from which much of our knowledge about Viking Age Scandinavian culture, and early medieval Icelandic society, comes from.

The Commonwealth period is also responsible for the propagation of a new form of currency – *vaðmál* – or legal cloth. By the 13th century, and perhaps earlier, this became the main currency in Iceland with which all economic transactions were carried out. Research is demonstrating that this intensification in the production and use of cloth currency was highly standardised, legally regulated, and may have been encouraged by trade with European centres, notably Norway and the British Isles. Cloth in Iceland was used to pay debts, taxes, tithes, legal compensation. Outside of Iceland, it was traded along with ‘*röggvarafeldir*’ – or pile woven cloaks – for goods and resources that Iceland was lacking.¹ At the same time, Icelanders were adapting their weaving technology to meet the demands of European markets by altering the length of their *ell* – the standard unit of measure for

determining the exchange value of cloth – several times over the course of the medieval period, and by making subtle modifications in the cloth itself.

The nature of the data

Iceland's archaeological record is remarkably rich in textile collections, ranging from the Viking Age (c. AD 874–1050) until the early 19th century, and within northern Europe, historic and ethnohistoric sources suggest that Icelandic weavers operated with uniquely distinctive technologies into the early modern period and participated in significantly important ways within the national economy through much of the medieval period. Technologically, Iceland remained somewhat anachronistic compared to the rest of Europe in the speed with which it integrated new technologies, such as horizontal looms and spinning wheels. These were adopted in the rest of Europe circa the 11th century,² but Iceland's history was characterised by the use of warp-weighted loom and the drop or high-top whorl well into the modern period.³ Horizontal looms only appeared in Iceland during the early decades of the 17th century, as part of overall reforms implemented by the Danish authorities trying to industrialise Iceland and bring her into the modern world.⁴ Regulations and modernisation policies accompanying the introduction of this new device included attempts to improve standards for exported knitwear and introduced changes in rural textile production.⁵ However, possibly the most important of the changes accompanying the introduction of the new loom in Iceland was the creation of industrial weaving workshops in Reykjavik, staffed by male weavers who had been trained in Denmark⁶ on new technologies and with new goals and a new social organisation of textile production. This administrative initiative shifted the production of cloth from rural communities, where it was produced exclusively by women,⁷ to a newly founded urban centre, where textiles would be produced by men under state authority and specialised merchants' supervision.

Prior to this change, and throughout the medieval period, all weaving and textile production was undertaken locally on farms without direct oversight from traders or merchants. Textiles were produced by the women of these farm households, sometimes with female servants employed to assist, following regulations on cloth dimensions and qualities that were stipulated in laws passed at the general assembly, the Althing. These standards were enforced through lawsuits, where issues of quality or payment were disputed, and by the maintenance of measuring sticks or similar devices cut to match the legal standards and kept at churches or district officials' farms around the island. Medieval historical sources – including sagas and law codes – indicate that a specific form of homespun woollen cloth known as *vaðmál* became a legal form of currency throughout Iceland from the 12th century⁸ and continued to serve as a currency and export product into the 16th century, if not later. *Vaðmál* was a 2/2 twill produced according to guidelines for measurement and quality that were recorded in the sections of law (*búalög*) that governed agricultural production in the medieval Icelandic law code *Grágás* and in its successors, *Járnsíða* (1271–1281), *Jónsbók* (1281–1662).

While these historical sources have been mined by Hoffmann and Þórlaksson, among others, for insights into medieval Icelandic textile production and trade, a limited number of archaeological textile specimens from archaeological sites have been examined in the past. While these studies confirmed that *vaðmál* was present in archaeological collections, they were insufficiently detailed or expansive to document its origins, how common it was on individual sites, how ubiquitous it was at different sites across Iceland, when it was most commonly produced, how standardised its production was, or when it disappears from the archaeological record.

One of the first conclusions reached through the *Rags to Riches* Project⁹ is documentation that archaeological textile collections in Iceland are abundant, rich in the information they can provide,

and understudied. To date, archaeological textiles, with an estimated number between 4,000–6,000 fragments range from the Viking Age to the 19th century from burials, settlements and harbour sites and ecclesiastic centres.¹⁰ Approximately 4,558 have been examined and more continue to be added to the current analysis. Textiles from these sites, ranging in number from a few specimens to literally thousands of pieces per site, have been subjected to detailed microscopic and macroscopic analyses, dye analysis, formal analyses, and in some cases AMS dating. These analyses support many of the historical sources’ suggestions about the importance of vaðmal in the medieval period but add new complexities and new insights about the dominant role that this textile type played in the Icelandic economy and in the daily lives and production decisions of Icelandic households over a span of at least 400 years. They show clearly that throughout the medieval period 2/2 twills dominated textile production, except during the Viking Age where more diversity in weaves was noted. From AD 1200 onward, although a small number of plain weaves are also present, there is no evidence for patterned twills of any sort after the Viking Age, there are very few 2/1 twills, and vaðmal became the focus of Icelandic textile production (Table 3.1).¹¹

<i>Sites and periods</i>	<i>2/2 twill</i>	<i>Plain weave</i>
Viking Age 9th–11th cent. (including data from approximately ten mortuary sites)	30	3
Bessastaðir 1988 excavations VA–19th cent.	22	4
Möðruvellir 13th cent.	71	2
Gásir 14th cent.	53	1
Skriðuklaustur 15th cent.	9	9
Kúabot 14th–15th cent.	3	3
Bergþórshvoll 15th cent.	79	20
Gilsbakki 15th–17th cent.	29	6

Table 3.1. Charts of percentage of different types of cloth

Medieval documents and saga sources on trade

Due to its remote location in the middle of the North Atlantic and the origin of the settlers, Iceland was dependent on trade with

Norway from its earliest days. Norway provided her with some of the basic necessities needed for survival and in exchange Iceland offered two main resources: fish and wool. Iceland's trade in cloth, both exports and imports, has been a topic of on-going discussion among scholars,²² based primarily on documentary evidence. Medieval literary sources contain many details about items of foreign cloth imported to Iceland during the medieval period. While not comprehensive, [Table 3.2](#) provides a modest sample of examples of cloth described in sagas, the medieval law codes, or local parish registries that must have been imported into Iceland. References to foreign cloth usually describe silks or linens with lavish colours and may be literary exaggerations, embellishments rather than factual descriptions, or descriptions that focus only on the most arresting textiles at the expense of descriptions of plainer imports. They do paint a far more elaborate picture than what has survived archaeologically or in museum collections. With few exceptions, and those being clerical robes,²³ preserved textiles from the medieval period are lacking in any bright colours.

<i>Imported from Europe to Iceland</i>	<i>Description of cloth</i>	<i>From where?</i>
Egil's Saga	Silk/English striped cloth from York 'Fustian' Ch 67,78, 79 ¹²	York
Laxdæla Saga	Kjartan receives a cloak and red scarlet garments to match from King Olaf of Norway ¹³	Norway
Laxdæla Saga	Olaf the Peacock receives gifts of scarlet cloth from King Haraldr of Norway ¹⁴	Norway
Laxdaela Saga	Bolli receives silk brocade garments and a scarlet cloak given to him by the Emperor upon returning from Constantinople ¹⁵	Constantinople
Gunnlaug's saga	Gunnlaugr Ormstunga receives a set of cloths of new 'scarlet cloth' in payment for a poem that he composed for King Sigtrygggr of Ireland ¹⁶	Ireland
Gunnlaug's Saga	Once again Gunnlaug receives a scarlet cloak trimmed with the best furs and embroidered down to the hem from King Ethelred of England ¹⁷	England
Grágás	Two ells of English linen (Two ells wide) = one ounce unit (six ells of vaðmál) ¹⁸	England
Grágás	Three ells of broad linen= two ounce unit ¹⁹	Unknown
DI VI: 1415–1589	'The Icelandic clothes' mentioned in connection with items sold to Iceland from England ²⁰	England
Gilsbakkí Máldagi 1300 (DI II: 358–359)	The staðir comes with five clerics' vestments (<i>messuföt</i>) and a deacon's vestments. Three velvet priests' chasubles (<i>hökull</i>) and a fustian chasuble and a linen chasuble for the fifth; a priest's cope (<i>kantara kápa</i>) of velvet cloth and another woven one; fustian for the third... Four white (linen) priest's surplices (<i>sloppar</i>) and all the books needed for the services ²¹	Unknown

Table 3.2. examples of cloth described in sagas, the medieval law codes, or

local parish registries that must have been imported into Iceland

From this preliminary sample of medieval sources two places stand out as important locations from which cloth was exported to Iceland: Norway and the British Isles. While the sagas represent these imports as precious gifts from kings and leaders, largely in Scandinavia to Icelanders abroad, the law codes, letters, and charters suggest the movement of commodities and raw materials largely from the British Isles. As will be discussed in the next sections, archaeological evidence provides independent support that local tastes in these regions, especially the British Isles, may also have influenced how cloth produced in Iceland for export was spun and woven.

Evidence of trade in the archaeological textile collections and technological changes through time: spinning S or spinning Z?

Spin direction stands out as one changing component of textile production in the late Viking and medieval periods in Iceland that might have been affected by interaction with European trade markets and demands. Many scholars have argued that choices about the direction in which threads are spun during the making of cloth is one among many of the technological decisions involved in cloth production traditions that seems to be particularly culturally conservative.²⁴ The decision to spin yarn either clockwise (z-spun) or counter-clockwise (s-spun) is technologically neutral: either direction will produce usable yarn. Yet in many archaeological studies, spin direction seems to remain constant over broad geographic regions, as do decisions whether to use counter-clockwise spun or clockwise spun yarns for warp or weft threads and whether to use differently spun threads for different tasks. These consistencies suggest that such choices and decisions are elements of daily production passed down from experienced to inexperienced makers of cloth as part of the

education through which new textile producers are trained.²⁵ As a result, spin direction and the combinations in which differently spun threads are used are non-random, culturally informative attributes of textile assemblages. Conversely, major changes in regional patterns of spinning and weaving are similarly socially informative acts.

From the late 9th century to the early 11th century Icelandic Viking Age cloth was largely z/z spun, using single yarns, but with occasional pieces of cloth spun z/s. Z/z spun cloth also appears to have been the norm in Scandinavia from AD 200 onwards, where the shift to z/z spinning in Roman Iron Age Scandinavia has been linked to the adoption of the warp weighted loom along with the weaving of 2/2 twills.²⁶

By the Viking Age, however, z/s spun fibres are noted on some Scandinavian sites, although Norwegian and Gotlandic traditions remained more conservative with a persistent use of older spinning methods and the continued production of z/z spun twills.²⁷ In the Icelandic case, z/z textiles produced in manners similar to contemporary Norwegian textile traditions dominated at the time of settlement, but z/s-spun twills quickly came to replace z/z textile in the Icelandic assemblages. By the 11th–12th centuries, twills and tabbies woven with z/s-spun yarns became the norm and this pattern persisted homogeneously and uninterrupted until the introduction of the flat loom into Iceland in AD 1740 (Fig. 3.1).

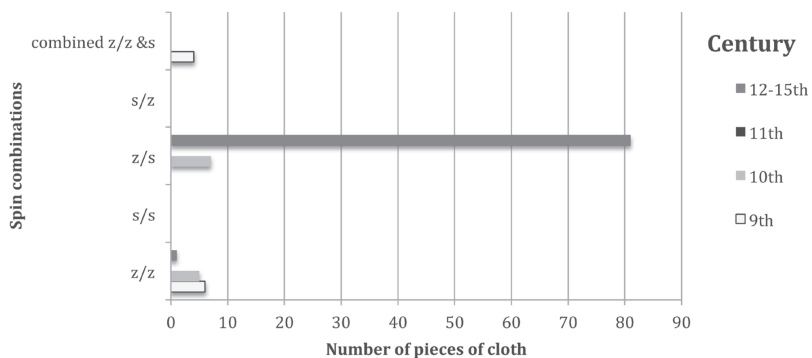


Fig. 3.1. Percentage of z/z and s/z spun textiles in Iceland from the Viking Age to the 15th century.

It is unlikely that the shift or desire to spin z or s had much to do with technological concerns since spinners and weavers used the same tools in northern Europe since AD 200 to spin equally well in one direction or the other.²⁸ Two explanations seem most likely responsible for this shift in Icelandic spin direction: the ethnic origins of the spinners who were producing the yarn and bringing different textiles traditions into Iceland; or trade and pressure from international markets that encouraged Icelanders to modify their textile technology to meet European market needs.

The origins of the spinners may be significant. Mitochondrial DNA studies on modern Icelanders carried out by Helgason *et al.* have demonstrated a significant Celtic component among Iceland's female settlers.²⁹ It is possible that these women brought with them, to Iceland, their spinning techniques from the British Isles where z/s spun cloth appears to have been commonly produced in most of the country. In fact, Bender Jørgensen and Walton Rogers noted that textiles from the 9th–10th centuries across Great Britain and in urban sites were generally z/s spun, which was quite different to textiles from Viking grave finds from Scotland, Ireland and the Isle of Man where settlers were presumably Norwegian and were producing z/z spun textiles.³⁰ Although this piece of information does not answer why Icelandic women eventually adopted z/s spinning for the production of all cloth, it suggests that ethnic origin may have had some influence. Both authors concluded that the urban sites of the 9th and 10th centuries in the British Isles offer textiles that are different than those from Viking graves and argue that the urban cloth types should be more closely compared to similar find groups from Continental Europe, where z/s cloth is more prevalent.³¹ The pattern in the British Isles is therefore not dissimilar to Iceland. Burials from the landnám show significant numbers of z/z spun textiles while contemporary settlement sites such as Hofstaðir³² and Bessastaðir suggest an equal if not greater proportion of z/s

spun textiles. This may reflect particular attitudes about the dead by including with them either old and discarded cloth, or unique cloth that was associated with notions of the mother country and their Norwegian roots.

Spinning, weaving and trade

The influence of trade with Europe may also have contributed to differences in textile traditions and spin directions in the British Isles that, through a rippling effect, eventually spread to Iceland. During the Landnám/settlement period (c. AD 874–930), settlers brought with them as much as they could carry to settle on this new island and were perhaps somewhat unaware of the harsh conditions they would encounter.³³ Bringing with them a Norwegian life-style that they attempted to replicate, they also brought with them sheep and cattle. With a dominant Norwegian culture, the settlers naturally turned towards Norway for supplies where long-standing kinship relationships and networks still existed and established trade relationships with that country.³⁴ According to Bruce Gelsinger, the vital commodity they sought was grain, although this remains inconclusive from the documentary sources and the settlers may have instead required a range of resources unavailable in Iceland. In exchange, the Icelanders traded woollen cloth, sulphur, as well as other North Atlantic exotics such as falcons, arctic fox fur, walrus ivory, etc.³⁵

During the 10th century, Norway was invested in breeding cattle, their own supplies of woollen cloth were low, and the country's population was expanding quickly. Consequently, Norwegians were willing to acquire Icelandic wool products in exchange for the goods Icelanders needed.³⁶ Thus, Norway was Iceland's first and most important trading partner from the beginning, and by 1022 Iceland and Norway established the first reciprocal commercial agreement.³⁷

Norwegian merchants also forged ties with England to acquire additional supplies to satisfy both Icelandic needs and their own,³⁸

and Icelanders also established limited trade with England early on. This is apparent in the striking similarities between Icelandic legal cloth measurements and the British ones. As Gelsinger noted:

In 1100 King Henry I introduced the yard in England; it was composed of two ells, and the standard ell according to William of Malmesbury was equal to the king's own right forearm. It was at about the same time that the 'short' or legal öln, exactly corresponding to the length of this English ell (18", c. 46 cm), was standardised in Iceland, thereby suggesting that measurements in stikur, each of which was the same length as Henry's yard began to be used in Iceland at the same time as well. In 1196 King Richard I issued the Assize of Measures stipulating that all cloth everywhere in England had to be woven in widths of one yard; again, just a few years later, about 1200, Iceland's 'stika law' was made, stating the vaðmal, linen, and all other cloth had to be two álnir in width which was the same the English yard.³⁹

According to Gelsinger, the purpose of this Icelandic law, as well as the use of the short, or legal, öln 100 years prior, was to facilitate the sale of Icelandic cloth in England by catering to British customers used to their own system of measurement.⁴⁰ Gelsinger suggested that the need for Icelandic cloth in Britain was a direct outgrowth of British merchants' specialised production of high-quality woollens for export to the Low Countries. In rural areas of Britain, he argued, people producing sufficient amounts of wool for their own households' consumption would have had little need for Icelandic vaðmál. In urban areas, however, textile merchants and craftsmen would have sought to produce cloth that brought them the highest revenues when sold as exports and would not have wasted time or wool producing coarse cloth with low resale value for local use by the urban poor. While some ordinary woollens might have been obtained from rural surpluses, most of the urban centres' trade and their production would have been focused on fine textiles suitable for export. Gelsinger argued, therefore, that although rural English communities probably supplied their own needs and some of the urban demands for

utilitarian fabrics, the needs of urban centres would have been great and Icelandic vaðmál filled requirements for supplementary cloth used by regular townsmen.⁴¹

According to this interpretation, vaðmál was used by the urban poor in Europe. Gelsinger supported his argument through reference to medieval documentary data on competitive prices for Icelandic vaðmál, as well as information from post-medieval sources such as the Brothers Grimm's dictionary, where the term 'vaðmál' is defined as a type of cloth used by the lower classes and paupers in Germany.⁴² As the Hanseatic League's merchants made their way into Norway during the 13th century, the vaðmál they obtained in Norway to clothe the poor was probably Icelandic. As the Germans were less engaged in the wool trade than the English and were importing vaðmál as a fabric largely suited for the poor, it is more than probable that the English, who were actively involved in the export wool trade, may well also have imported cheap woollens for urban use between the 11th and the 13th centuries.⁴³ While still inconclusive, several archaeological data sets provide support for Gelsinger's interpretation that England was an important consumer of vaðmál during the early Middle Ages, as do sources cited by Hoffman and others.⁴⁴

There has been some debate over whether it was possible to produce cloth two ells or more in width on a warp weighted loom, as King Richard I's Law of Assizes and the Icelandic 'stika' law required. However, recent archaeological discoveries in Scandinavia and the North Atlantic have put these discussions to rest. At the *Farm Beneath the Sand* (GUS) site in Greenland, a 12th–13th century long beam from a warp-weighted loom was discovered – one of the more important finds from this site.⁴⁵ This beam once occupied the top of a loom and measures 188 cm across. It is perforated with 34 holes for attaching the warp threads and the central portion housing the perforations measures 160 cm in width.⁴⁶ As noted above, medieval Icelandic legal documents suggest that one ell was equal to 49.2 cm and that

‘legal vaðmal’ should measure two ells in width (98.4 cm).⁴⁷ Clearly, cloth this wide, and even up to three ells in width (147.6 cm), could be woven on this type of loom. (Fig. 3.2)



Fig. 3.2. Measuring one ell. © The Árni Magnússon Institute, Reykjavík (Ref.: Jónsbók, AM 147 4to (Heynesbók), 15th century). Photographer. Jóhanna Óslafsdóttir.

The production of the 2/2 twill with z- and s-spun combined yarns may also have been a response to British market demands and standards. These may, in turn, have developed in Britain in response to continental European concerns and demands. In northern continental Europe during the 10th and 11th centuries spin direction appears to have been z/s during this period, as was noted in Germany;⁴⁸ the Netherlands;⁴⁹ and Scandinavia excluding Norway and Gotland (Fig. 3.3).⁵⁰ As with the change in the width of the Icelandic ell, Icelanders' shift from using a range of yarn types to produce locally consumed textiles towards a homogeneous focus on z/s-spun yarns appears to be linked to this transition from production for Icelandic needs to production for foreign consumption.

The picture emerging from the archaeological textile data, as well as from the medieval sources, is thus one characterised by movements and voyages back and forth across the Norwegian Sea between Iceland, Norway, and the British Isles. This seems not only to have influenced details such as spin direction and the length of the ell but also to have affected the standardisation and intensified production of cloth as currency within Iceland.



Fig. 3.3. Distribution of z/z and z/s spun cloth across northern Europe (Hayeur Smith 2012)

Martha Hoffman and Helgi Þórlaksson suggest that rapidly dwindling supplies of silver in Iceland, and a view carried from Norway that cloth could be used as currency,⁵¹ stimulated Icelanders to take the most abundant resource their country could offer – wool – and turn it into currency. Dugmore, Keller, and McGovern⁵² have noted zooarchaeological patterns suggesting that by AD 1200 Icelanders were managing their land to support flocks of sheep whose age/sex profiles are consistent with intensified production of wool. Further, they noted that that this Icelandic pattern differed from zooarchaeological patterning in Greenland, where the Norse appear to have managed their sheep largely for milk, and not surplus wool production.⁵³

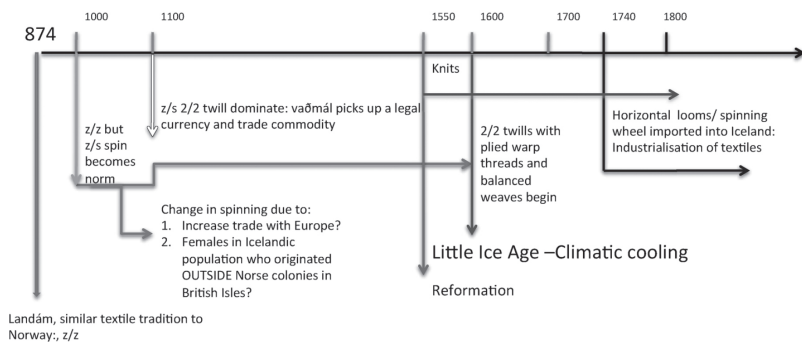


Fig. 3.4. Chronological distribution of weaving traditions in Iceland from the Viking Age to AD 1800.

Plotting thread counts from the medieval Icelandic textiles reveals interesting and significant patterns for understanding transformations in the production of Icelandic vaðmál and its use as legal cloth. Furthermore, it has enabled the development of a chronological sequence for cloth and cloth production, extending over a 1000 year period that is marked by significant changes in cloth production occurring at the end of the Viking Age, at the end of the medieval period, at the beginning of the early modern period, and finally around AD 1740, following the introduction of horizontal looms into Iceland (Fig. 3.4). In addition to highlighting significant changes through time in the roles that cloth production had within Icelandic society, the chronological divisions suggested by differences in woven assemblages over the course of a millennium may also be useful for dating Icelandic sites.

Figure 3.5 plots warp and weft thread counts per cm for textile fragments recovered from deposits at the sites of Gásir, Kúabot, Möðruvellir, Bessastaðir, Bergþórshvoll, and Skriðuklaustur dating to AD 1200–1500. These counts indicate very tightly standardised production patterns with warp thread counts tightly bounded in a narrow range of 7–13 threads per cm and with specific concentrations around 8, 10 and 12 warp threads per cm. Weft threads, similarly, appear to have been kept within a very narrow range of 4–10 weft threads per cm. Although there are small numbers of outlying textiles, with greater or lesser numbers of warp and weft threads, the focal concentration of warp and weft thread counts within these narrow bounds stands out in sufficiently stark contrast to earlier Viking Age and later, post-medieval Icelandic thread count patterns do suggest that medieval Icelanders were weaving woollen cloth to quasi-industrialised standards in households all over Iceland.

These textiles are all woven in a standardised manner: all are 2/2 twills, most have hard spun warp threads and fluffier wefts, and all are z/s spun. At some sites, such as Bergþórshvoll, women appear to have been engaged in producing this type of cloth almost industrially. The data's clustering clearly suggests the growing importance of vaðmál as a standardised legal currency and export product as early as the early 13th and 14th centuries at Gásir and Möðruvellir,⁵⁴ and continuing into the late medieval period at the sites of Bessastaðir, Kúabot, Bergþórshvoll. These archaeological data contradict often-stated views that cloth currency diminished in use after the 13th century, when fish – especially dried fish, or *skreið* – has been thought to have taken its place, wholly or in part, as Iceland's most important export product. Instead, a more complex and nuanced picture emerges from the archaeological data, with a slow tapering off in the production and standardisation of cloth currency during the 16th and 17th centuries. The use of vaðmál as a critically important

Icelandic export into the 17th century was also suggested by information in English harbour records examined by Helgi Þorláksson, who wrote that in 1596, for example, a 60 ton English ship engaged in Icelandic trade docked at Yarmouth, England carrying 640 yards (c. 585 m) of vaðmál, 240 vaðmál socks, 720 vaðmál mittens, and 18 vaðmál cassocks, which the harbour-masters assessed as being worth three times more than all of the fish that filled its hold.⁵⁵ The archaeological evidence for careful standardisation in the production of Icelandic woollens, the maintenance of these standards for nearly 400 years, and its continuation into the early modern period supports Þorláksson's observations from the English harbour records and argues for a more complex relationship between fishing and farming as staples of Iceland's export economy throughout the medieval and post-medieval periods.

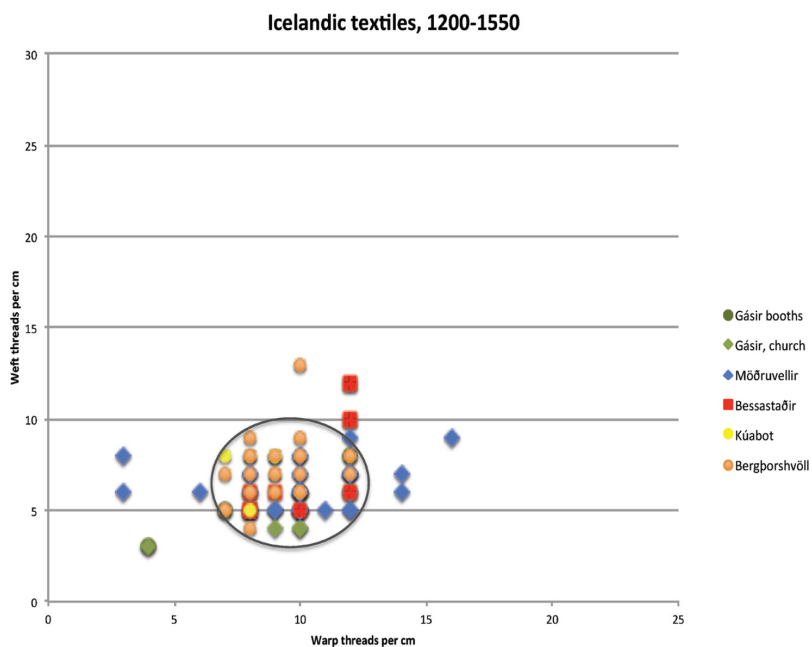


Fig. 3.5. Distribution of thread counts for the medieval period.

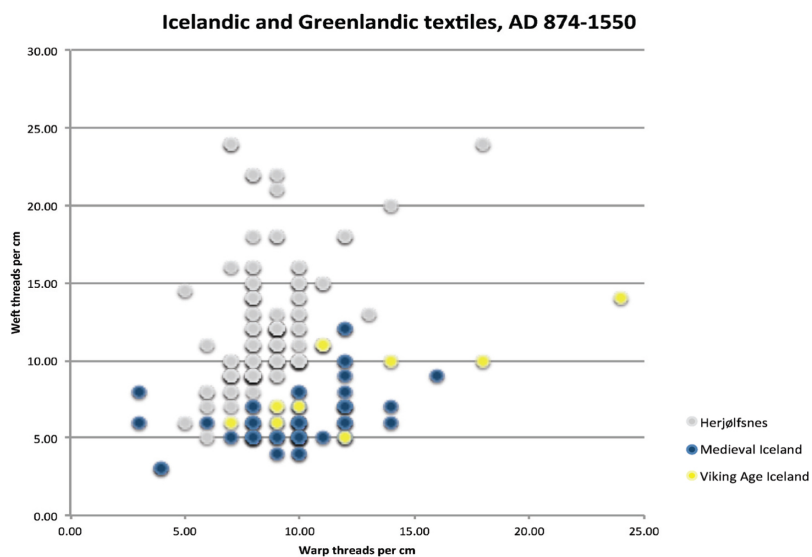


Fig. 3.6. Medieval Icelandic cloth compared with that of Greenland.

Further, when compared with similar data on cloth production from medieval Greenlandic sites, (Fig. 3.6) Icelandic vaðmál and Greenlandic vaðmál appear to have evolved in very different directions from identical Viking Age origins. Greenlandic weavers adapted their cloth production to produce ever-warmer fabrics, responding to climatic degradation through the creation of weft dominant cloths around AD 1308–1360⁵⁶ while Icelandic cloth from the same periods became focused on the production of standardised, cloth with relatively low thread counts that was exported from all parts of the country and was used as currency within it.

Legal standards in the production of vaðmál

Medieval Icelandic sources provide information on the legal standards established for using vaðmál as cloth currency, but no data on how accurately or consistently these standards were followed. How do these sources compare with the archaeological data presented here? According to Grágás (AD 1117–1264) vaðmál was to be woven according to strict legal standards.⁵⁷ As noted above, for vaðmál to be considered legally useful as an export product and as currency, it was to measure two ells in width, where one ell was equal to 49.2 cm in length during the medieval period. Changes through time in the widths recorded for legal vaðmál in the early medieval law code *Grágás*⁵⁸ suggest that the standardised width of cloth panels used as ‘legal vaðmál’ changed through time in response to international trading standards, with an ell of 55.6 cm width eventually replacing the earlier 49.2 cm ell.⁵⁹ *Búalög*, a slightly later source (13th century with continuous modifications added through time), stipulates that vaðmál was eventually to be woven in panels of three and half ells in width (roughly 1.5 m).⁶⁰

Penalties also existed for those who produced inadequate vaðmál or did not use appropriate and authorised measuring sticks

to demonstrate that their cloth matched accepted standards for cloth or tried to cheat and measure in ‘false ells’.⁶¹ Sagas often contain details about people cheating with legal cloth. *Ljósvetninga saga*, written in the 13th century about events in the 10th/11th, contains a story about a trade deal gone wrong involving the transfer of pile-woven cloaks between a certain Thorir Akraskegg and Helgi, a merchant. The payment for goods sold by Helgi was to be made by Thorir in pile woven cloaks however, when Helgi received payment he found that all the cloaks were full of holes.⁶²

Information on the thread counts required for cloth to be legally traded as a standardised commodity is slightly more difficult to find in medieval sources, but they do exist. Hoffman noted that in *Búalög* these guidelines are frequently inconsistent.⁶³ Þorláksson, on the other hand, identified legal guidelines enacted at various periods, first around AD 1300 and then again between AD 1613 and 1640, stating that *gjalðavoð* was to have 9–10 warp threads per cm, *klæðavoð* 11 warp threads per cm, and *smávoð* 11–14 warp threads per cm⁶⁴. Hoffman argued for a range from between 4 warp threads to 14 per cm for legal cloth⁶⁵ (Fig. 3.7).

Different qualities and types of vaðmál were also produced in Iceland at different periods of time, and each was differentiated by names such as *þragðarvoð*, *gjalðavóð*, *klæðavóð*, *hafnarvoð*, *munaðarvoð*, *vöruvoð*, *smávoð*, etc. The finest of these were *Smávoð* and *þragðarvoð* with the highest thread counts; these were never used in domestic trade but could be used to pay tithes to the church.⁶⁶

The variations around established standards that are suggested in legal texts find material resonance in archaeological data. Women, as the sole weavers during this period, were weaving according to strict legal guidelines – and these guidelines within Iceland included the lengths of the ells used to establish the widths of cloth panels, the value of legal cloth against the established value of other commodities (e.g., one cow was worth 120 ells of ‘legal vaðmál’). Details of spin direction and the types of weave

traded, as well as the measuring standards used for the cloth's production were undoubtedly stimulated by trade with England and Norway and may have been quite deliberate to render their product more enticing to European customers.

Thus, in Iceland relationships between men and women regarding the caring of sheep and the preparation of wool for textile production appear to have been more collaborative and mutually important rather than divergent, as is often suggested in gender scholarship.⁶⁷ (Gender theorists have actively, effectively, and usefully challenged preconceived views of gender stereotypes that delegated women to the role of caregivers and denied (through either commission or omission) their involvement in power relationships, leadership, etc.). Vaðmál, along with other textiles, was produced by women from wool that they had gathered, carded, washed, and spun over the course of the agricultural year.⁶⁸ Most wool was collected in the spring and early summer, then cleaned, carded and stored until a time when other activities were no longer so pressing.⁶⁹ Men, on the other hand, were responsible for all aspects pertaining to sheep husbandry, as well as establishing trade relationships, setting the legal guidelines for cloth currency, and trading the cloth that was so important to the Icelandic economy throughout the medieval period. Female resistance, expressed through weaving, to male domination of the economic interactions that set values for cloth currency appears to be absent in Iceland, with each gender understanding its complementary role in this economic system.⁷⁰ This seeming symbiosis may be possibly due to the small size of the Icelandic colony, the harsh nature of the North Atlantic environment, and the need for collaborative understandings between the sexes in order to guarantee survival.

Conclusion

Literary sources suggest that trade with Iceland took place both eastward from Iceland and westward to Iceland and hint at

significant amounts of cloth being brought from Europe, predominantly from Norway and England. The lack of evidence for significant numbers of imported textiles in Icelandic archaeological collections during the medieval period, is intriguing and may be due to several factors including literary exaggerations or embellishments, cellulose-based textiles (e.g., linens, cotton) being poorly preserved in archaeological contexts (and thus poorly represented in excavated data sets), and imported cloth remaining in use for generations in the hands of elites or the clergy and infrequently making its way into the middens of Norse farms.

Evidence for the production of Icelandic woollen goods for trade, on the other hand, is directly perceptible archaeologically in details of the textiles themselves. Attributes such as z/s yarns used in making 2/2 twills and the fluctuating values appointed to the Icelandic ell throughout the medieval period have been noted in this paper. Within Iceland cloth as a form of currency became widespread and legally standardised from the early Commonwealth period to the early 17th century, regulated by laws and guidelines stipulated in the medieval and post-medieval law codes. This currency may have developed and gained momentum in part due to outside trade with European centres. The influence of those centres on Icelandic production can be seen, conversely, in shifts through time in spin direction, the measurement of the legal ell, and the number of warp and weft threads per centimetre of cloth woven. All of these details and the production decisions they imply may have formed part of a cluster of behaviours that were all intricately connected with Iceland's desire to fit into the European textile market.

Using results from textile analysis it is possible to start developing a chronology of changing patterns in cloth production within Iceland over 1000 year period, with observed changes occurring at the end of the Viking Age, the medieval period, the Reformation, and the early modern period, when increased importation of foreign cloth was accompanied by the adoption of a

new technological implement into Iceland: the flat loom. Throughout the first 800 years of Iceland's existence, women were wholly responsible for making cloth and although men's roles and women's roles in the total system of wool production were complementary, it would not be incorrect to say that women were at the root of the Icelandic economic system, ensuring at a very basic level the survival of their people in this harsh land. Changes in technology in the 18th century must have brought on a complete reorganisation of women's roles within Icelandic society, and the pride once gained from textile production carried out on farms by women overseeing other women and without the control by merchants or patrons decreased, becoming centralised and progressively integrated into the industrial world, even though much later than other European countries.



Fig. 3.7. Measuring ells of vaðmál. © The Árni Magnússon Institute, Reykjavík, (Ref.: Jónsbók, GKS 3269b 4to. 15th century) Photographer: Jóhanna Óslafsdóttir.

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4. Technology and Textile Production from the Viking Age and the Middle Ages: Norwegian Cases

Ingvild Øye

Textiles have been, and continue to be, indispensable necessities but are also able to signify status. The work for producing textiles of different types and qualities – cloth, all kinds of clothes, garments, linen, tapestries, carpets, sails etc. – involved complex and time-consuming processes. As concrete remains of different work processes, textile tools in different physical and socio-economic environments may give direct information about the technological basis and the places and milieus of production. In this paper, I focus on questions related to textile production in the Viking Age and early Middle Ages, c. AD 800–1300 in central part of western Norway, the counties of Hordaland and Sogn and Fjordane, based on archaeological finds of textile making implements. My aim is to shed light on questions related to stability or change in the textile production in these centuries. Is it possible to distinguish differences in the textile production equipment that is indicative of domestic production versus more specialised surplus production – from a differentiated and multi-purpose production for the household's own needs to a more specialised and standardised manufacture, as has been claimed for other areas?

A wide range of textile tools from the Viking Age (c. 800–1050) and the Middle Ages has been uncovered over the years within this region, but they have only to a small degree been

analysed and discussed in a wider geographical and socio-economic context. Fragments of textiles have also been identified in Viking Age graves from western Norway. The quality of some of these fabrics – fine worsted cloth of high uniform standard – also implies a high level of organisation, access to high-quality supplies of wool, and not least skilled labour for the sorting and combing of wool, and for spinning and weaving. It has therefore been debated whether some of these high quality fabrics had been imported, or whether textile milieus at that level existed in western Norway in the Viking Age. Is it possible then to illuminate these issues by studying the tools that were used in different contexts and environments?

Here, I focus on some selected archaeological assemblages found in different surroundings, representing varied landscapes from outer coast to inland and at different altitudes (Fig. 4.1). The area includes both central and marginal landscapes, but generally comprising rich and vast pastures able to provide an affluent supply of wool for textile production – both at the outer coast where sheep could also be winter grazing, and in the mountainous inland. The finds also represent different archaeological settings, from intentionally deposited burials from the Viking Age to more arbitrary traces from abandoned settlements. Both the archaeological and societal contexts vary and change over time: Grave contexts in the Viking Age provide most of the finds until c. AD 1000, while rural settlements with traces of textile production are represented in the whole period c. AD 800 and 1300, a period that saw the textile industry becoming established in towns. The cases presented here form part of a larger ongoing research project.

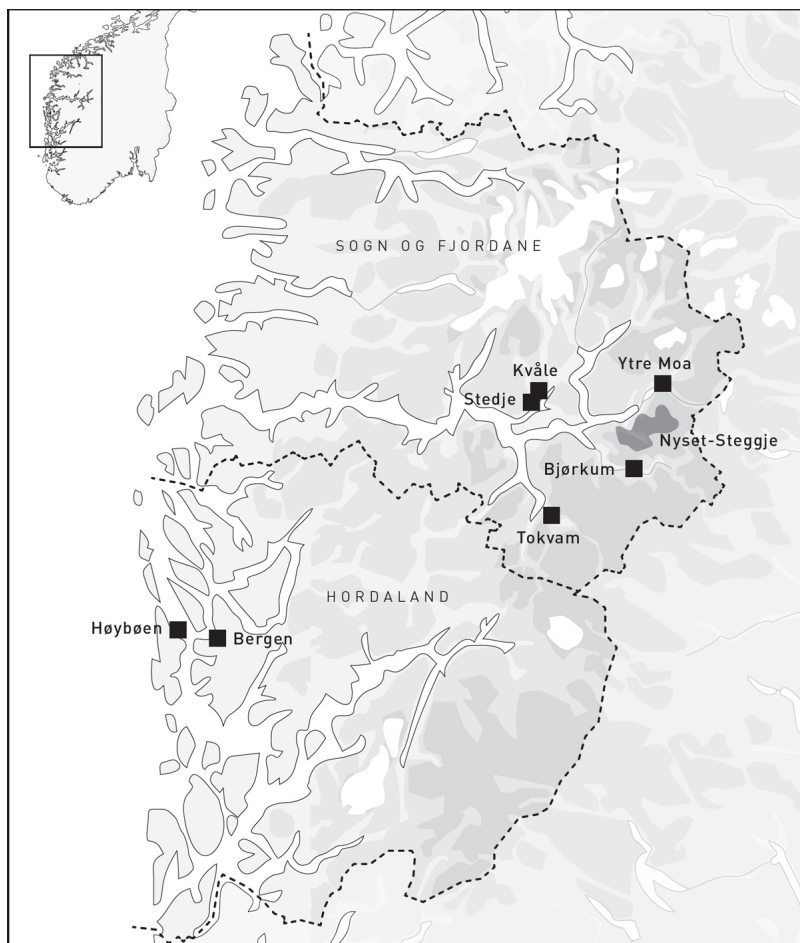


Fig. 4.1. Map showing the study area, the counties Hordaland and Sogn og Fjordane in western Norway, and the sites discussed in the paper (Drawing: Per Bækken).

Tools and textile production

Traditionally, textile tools have gained far less attention than the finds of textiles and textile remains. The implements can, however, shed more direct light on the actual production on the sites, where differences in the number and composition of the implements may signify different kinds of production and manufacture. Although the equipment is rather simple – a few spindle whorls of different sizes and weights, needles of different sizes and thicknesses, and a loom as basic tools – fine differences and the variety of the implements can be significant and reflect different types for quality and fabric. Production of standard cloth requires not only a homogeneous wool type but also standardised tools, or a more varied tool kit for producing many types of textiles. Such differences have also been detected at different types of settlement as indicators of either household or surplus production – in rural, proto-urban and urban contexts in Scandinavia.¹

Recent studies of textile tools have also shown the potential to shed light on both quality of the fabric and extent of the textile production. Threads have been spun for different purposes and of various fabrics, requiring different qualities of yarn. The quality is not only dependent on the quality of the fibre and the skill of the worker, but also the tools. Experimental research in spinning with a drop-spindle and weaving on the upright loom has demonstrated that both size and weight of the spindle whorl, even small differences of 5 g, affect the thickness and quality of the thread, and subsequently also the fabric.² The lightest whorls also needed another type of wool; softer and more homogenous than when spinning with heavier whorls. Light spindle whorls also rotate markedly faster than heavy ones. Historically, whorls of c. 25–35 g were commonly used to spin the wool from the Norwegian short-tailed sheep, and whorls of 50 g for plying the yarn.³ Whorls in the weight group 25–35 g could, however, be used to produce a variety of thread gauges, dependent on the dexterity of the

spinner. Lightweight whorls of c. 7–16 g could not, however, readily be used to produce thick threads.⁴

The size and shape of the spindle whorl also affected how tightly it could spin. A large spindle whorl does not spin as tight a thread as a small and relatively heavy one, and a conical spindle whorl turns more quickly than a disc-shaped one,⁵ and so on. Altogether, experiments have shown that the greatest significance for the product lies in the weight and its relation to the diameter of the whorl, deciding whether the thread can be thick or thin, and tightly or loosely spun. A spindle whorl of standard type would then have aided the process of achieving a consistent quality for a particular thread type and a limited range of shape and sizes, and little decorative elaboration would suggest standardised tools for bulk production.⁶ Clustering around certain weight groups should thus give a good indication of the type of yarn that was spun.

In most parts of Northern Europe the warp-weighted loom was replaced by the horizontal loom in the Early Middle Ages – earlier in some and later in other regions. In western Norway, the upright loom has in fact been in use in some rural areas until the middle of the last century, especially for weaving tapestries.⁷ The only remains of the upright loom found in Viking Age and medieval contexts from western Norway are the loom weights used for stretching the warp. On the historically known looms the weights were attached to the warp by means of a looped cord through the hole in the weight and never tied directly in the hole.⁸ Pairs of two stones of about the same weight were used to maintain the balance between the front threads and the back threads, and sometimes two stones were needed to balance one group of warp threads. To some extent it was possible to regulate the tension on the warp-threads by adjusting the number of ends to which one weight was attached.⁹ The number of loom weights on historically documented looms varies considerably, from c. 13 to 48, mostly between 20 and 40.¹⁰ Often two persons would weave together.¹¹

The weights affected both the weaving and the product. Experiments have shown that lighter loom weights generally are suitable for weaving fabrics with thin warp threads, while heavier weights are more useful for fabrics with a thick warp, giving the needed weight tension on the threads.¹² Thin threads would generally have functioned better in a more open tabby between the warp threads, or as weft threads.

Though less frequently, weaving beaters of iron, bone or wood appear in the archaeological record and were used for beating the weft inserted between the warp threads to make the weave tighter. Beaters of iron made it possible to weave fabrics of coarse threads tighter and quicker than when using beaters of softer material, and were considerably more efficient than wooden beaters when weaving tight fabrics such as sail cloth.¹³ Wool-combs, shears, needles/needle-cases and smoothers represent other textile-related implements found in archaeological contexts.

Access to textile fibres and time were also important factors, where experimental research has provided important information. The amount of wool per sheep or ram of the Old Norwegian breed seems to have been 1.7–2.5 kg,¹⁴ probably only half left when washed and sorted.¹⁵ The length of a thread that could be spun from 1 kg of wool varies according to the quality of the fibre, and the thickness of the thread. Experiments indicate, however, an output in the region of no more than 20 m spun thread per hour. Still the spinning is the least time consuming – also combing and preparations of the wool take time. As for weaving, around 70 cm of cloth per day on the vertical loom is regarded as a reasonable estimate. To produce a cloth of medium thread counts, c. 70 × 70 cm – a day's work – around 1680 m of spun wool was needed,¹⁶ giving an idea of the time consuming process of supplying enough yarn for the loom. The amount of wool required for producing two sets of the clothes of the period, one male and one female, has been estimated to about 6 kg and the time spent from around 100–160 full working days, dependent of the quality of the fibres. Some

of the most laborious tasks of the period must have been production of sails. To produce a large sail of 120 m², 60 kg of wool from 60–120 sheep were needed, and the time to produce the yarn needed alone has been estimated to 2.7 years, that probably would have required some kind of organised production.¹⁷ Some experiments indicate even more time and resources.¹⁸

Textile production would then, in addition to a general competence in textile manufacturing and access to raw material, need different types of implements – people and time. More specialised production would probably also need different people to work at the different stages of the long chain of processes – fibre preparation, spinning, weaving and finishing-off the manufacture, thus requiring a larger number of specialised tools and also a larger number of workers. How is this reflected in the archaeological record?

Textile implements in Viking Age graves

Within the study area, a total of 123 graves from the Viking period have revealed textile production equipment – from coast to inner parts of the fjord districts, and more frequently in the inner parts of the region. Of these, 40% contained only one textile related artefact, often a single spindle whorl. The most frequent artefact categories are spindle whorls and loom weights, but also weaving beaters, wool-combs, shears, smoothers, needles/needle cases are represented albeit less frequently. Of the 74 graves with more than one category of textile implements, 39 contained two categories, 11 three categories, 14 four categories, 9 graves had five categories and only 1 grave is represented by six different types of textile equipment.¹⁹

In a wider national perspective, the representation of textile related equipment is generally higher within the study area than in other parts of the country. According to Jan Petersen's national survey of textile production equipment from the period c. AD 600–

1000 from 1951, they included 97 spindle whorls, or 23% of all spindle whorls (430) from my study area. As for loom weights, 72% of 82 finds were ascribed to this area, and when counting loom weights 371 weights of 449, meaning 83%, which makes it an especially interesting area for research.²⁰

Tokvam – a Viking Age grave from Sogn

A grave from the early Viking Age, located in an arm of the 200 km long Sognefjord at the farm Tokvam in a valley in Aurland community (cf. [Fig. 4.1](#)), represents one of the more richly furnished graves with textile implements. In a large long-cairn close to the farm houses, traces of two female burials were found, one centrally located in the cairn, and another in its north-eastern part, both from the 9th century. Of these, the latter and secondary burial contained practically a whole toolkit: shears, fragments of a wool-comb, two spindle whorls, a weaving beater and 28 loom weights. The two spindle whorls both of the same weight group, 24–25 g, imply that they were used to spin yarn of medium fineness. The loom weights seem to represent all the stones in a warp-weighted loom. They are made of steatite in varying shapes, weighing from 140 g to 447 g, and about half of the complete or measurable weights between 300 g and 400g, where some seem to form pairs within a smaller weight group of about 200g ([Fig. 4.2](#)). Presupposing a tension of 20 g per thread, a weight of c. 200 g could stretch 10 warp threads, a weight of 400 g 20 threads, and so on. A dense thread count with many threads per cm would require many fairly light weights and preferably relatively equal weights, which should be possible in this case.

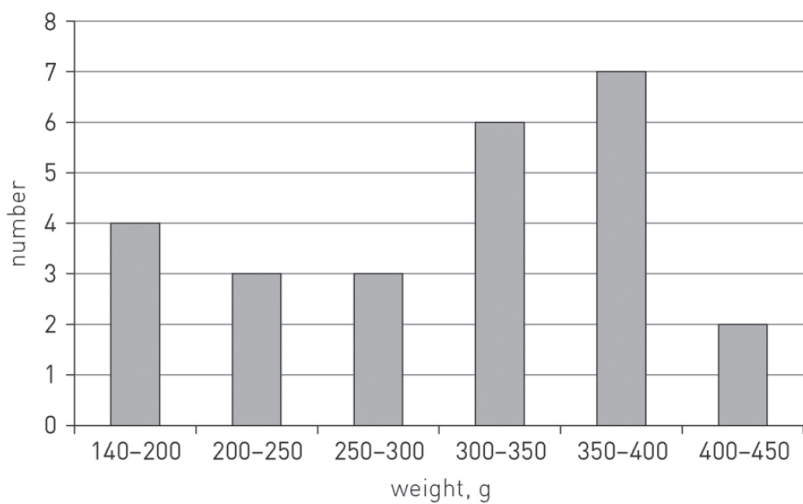


Fig. 4.2. Loom weights from a Viking Age grave, Tokvam in Aurland, Sogn by weight in weight groups of 50 g. N: 25.

The weaving beater was rather well preserved with a complete length of 80 cm, indicating a woven fabric at least of that length. Only 18–20 iron teeth of the wool-comb were preserved, mostly as fragments. The shears of iron with a U-shaped loop were found in several pieces but nearly complete. The textile equipment then implies that the wool was combed before spinning. The weights for spinning and weaving both indicate the produce and use of medium thick yarn that would have functioned well in a more open tabby between the warp threads, or as weft threads. The weaving beater was an effective tool to make the weft denser.

Both the location and the grave-goods demonstrate striking contrasts. While the one in the centre was richly endowed with status marking jewellery; an Irish bronze piece converted to a brooch, and two oval brooches, objects that have been regarded as indicators of the highest social rank in Viking Age female graves,²¹ the other was mainly furnished with practical tools. A spindle whorl did, however, also follow the more prestigious woman as a symbolic grave gift. A small fragment of textile fastened to a corroded iron pin from one of the brooches attracts special interest: a tabby of z/z spun yarn with thread counts of 18/24 per cm,²² demonstrating a medium tight woven fabric and with a denser weft than warp, which is rather unusual among the Viking Age textiles from western Norway. It also indicates that a weaving beater had been used. In theory then, the tool kit in the other burial could very well have been used to produce the fabric.

Textile production at Viking Age settlement sites

Artefacts found in occupational contexts differ from intentionally furnished graves, representing often damaged, discarded or lost objects, tramped into the ground inside or outside buildings within their working environments. Some abandoned settlements may also leave somewhat better preserved material *in situ*. It is therefore interesting to decide where they were found by looking

for combination of finds and spatial patterns to illuminate work. The finds may also indicate the number of people involved in the different work processes and whether these were spatially integrated or dislocated.

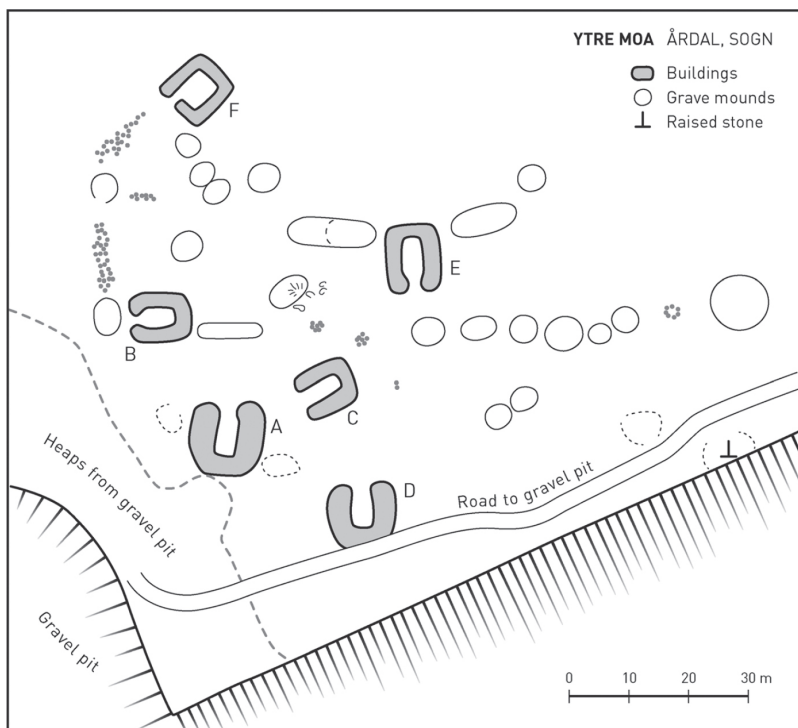


Fig. 4.3. Drawing showing the six buildings, A–F, at the terrace of Ytre Moa, surrounded by several grave mounds from different periods of the Iron Age. Drawing: Per Bækken after Bakka 1971.

Ytre Moa – a typical Viking Age farm?

One of the few deserted farms from the Viking Age that has been excavated is located along one of the arms of the long Sognefjord in the inner parts of Sogn in the community of Årdal, situated on a terrace about 100 m asl. (cf. Fig. 4.1). Here, six house sites (A–F), dated from the 9th to the 11th century, have been studied (Fig. 4.3). Except building A, that burnt down c. 900, they all represent the latest phase. All the buildings are fairly small one-room buildings, measuring 22.5–37.5 m² internally with a wide entrance on the gable side.²³ Although the buildings seem to have covered different functions, as many as five have left traces of textile production.

Altogether 14 spindle whorls were found, of these six were in the largest building F, interpreted as a dwelling house. The spindle whorls were all made of stone, mostly steatite, varying in weight from c. 10 g to 41 g, half of them under 15 g (Fig. 4.4). The different weights and shapes clearly indicate spinning yarn in all main qualities from very fine to thicker yarn. In building F all types of yarn were spun. Building D had only traces of spinning coarser yarn on whorls weighing more than 35 g.

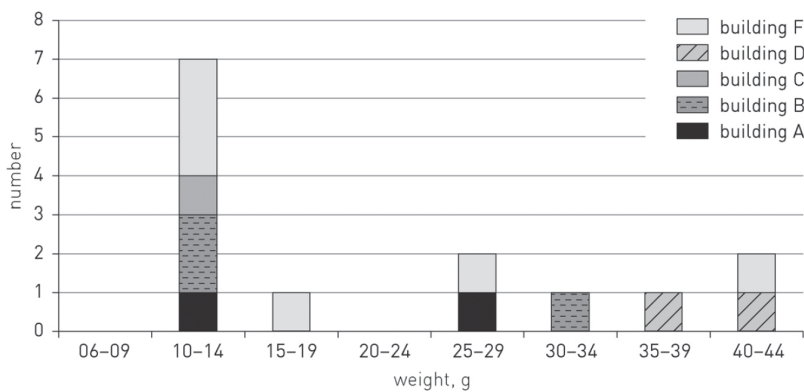


Fig. 4.4. Spindle whorls from the different buildings at Ytre Moa by weight in weight groups of 5 g N: 14.

Four of the buildings also had traces of weaving; 10 loom weights of which seven complete. Except for a heavier loom weight of 834 g in building F, the others match the most common weight groups from the grave at Tokvam, ranging between 224 g and 374 g. Buildings A, B and D each contained two loom weights of nearly the same weights. If they are representative, they indicate weaving cloth of fine to medium density. Shears were found in two of the buildings, A and F, the latter with two, underlining the textile producing environments in these buildings. The two measurable shears are medium sized and have a circular loop, representing higher mechanic efficiency than the one at Tokvam.²⁴ In buildings A and B, traces of the loom were found along the northern wall close to the entrance. In building F different activities seem to have been gathered around the hearth, but along the eastern wall there were only traces of a loom, signifying both common spaces and special areas designated for textile production.

Sunken-feature buildings – areas of specialised textile manufacture?

A special kind of house construction, so-called pit-houses or sunken-feature buildings, are known over larger areas and have been connected with textile production both archaeologically and through literary sources, denoted as ON *dyngja*, referring to its special sunken structure. Furnished with an overbuilt structure they seem to have been especially suitable for working with textile fibres.²⁵ In Norway, relatively few such buildings have been found compared with other areas in Scandinavia. During the last two decades rescue archaeology and open air stripping of larger areas have, however, revealed pit-houses also in western Norway. Here, I look at two different environments for such pit-houses, as a single building closely connected to the farm's nucleus, and as a cluster of buildings on the margins of a farm.

Stedje

In the community of Sogndal, about mid-fjord in Sogn, at a medieval high status farm *Stedje* close to the site of a medieval stave church, a sunken-feature building and remains of a longhouse and cooking pits have been excavated, revealing an interesting textile producing environment, dated to c. 850–1100 (cf. [Fig. 4.1](#)). The pit-house, measuring 5.1×6.9 m internally had altogether four hearths; two of them probably serving as cooking pits.²⁶ Here, 16 spindle whorls, 13 complete or measurable and 4 roughouts, 67 loom weights and also some roughouts, a possible weaving beater, two small needles of bone and bronze respectively, and a possible smoother of stone were found, together with fragments of burnt textiles.

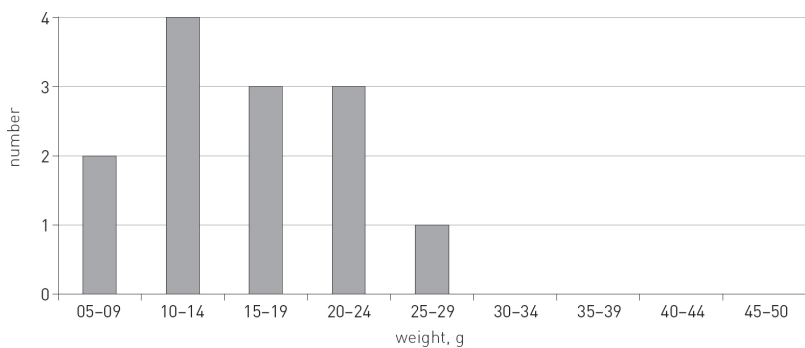


Fig. 4.5. Spindle whorls from a sunken-feature building at Stedje, Sogndal by weight in weight groups of 5 g N: 13.

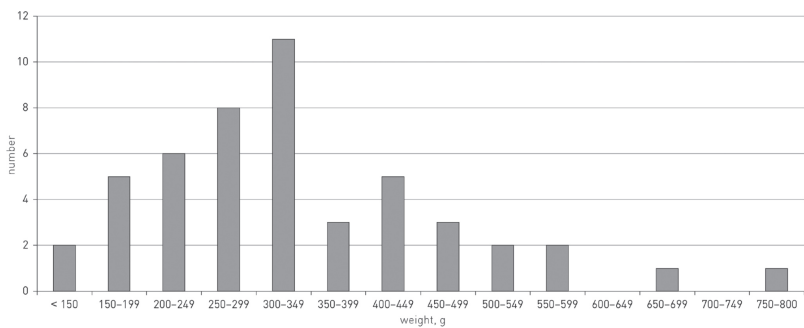


Fig. 4.6. Loom weights from a sunken-feature building at Stedje, Sogndal by weight in weight groups of 50 g N: 49.

The weight distribution of the 13 complete or measurable spindle whorls varies from 5 g to 28 g, half of them less than 15 g – generally lighter than those found at Ytre Moa, able to produce both very fine and medium thick yarn (Fig. 4.5). The holes for the spindles vary from 6 to 9 mm at the narrowest, also signifying that spindles of different size were used.

As for the more than 70 loom weights – complete or as roughouts and fragments, including eight reused parts of soapstone vessels – 49 could be estimated for weight, varying from 159 g to 754 g, the majority between 200 g and 400 g and with a peak between 300 g and 350 g (Fig. 4.6). The weight distribution of spindle whorls and loom weights then indicate primarily spinning and weaving of very fine yarn and cloth, but also fabrics of medium thickness.

Analyses of the textile fragments that were found in two carbonised lumps showed that they belonged to two types of textiles of flax, woven as plain tabby but both of z/z and z/s yarn. The thread counts vary within the two types from 14–22/10–17 per cm in the fragments with z/z spun and in the fragments with z/s spun yarn with thread counts of 10–17/10–19, signifying two qualities within each type. Some of the fragments have a fine gauze-like structure, resembling a thin veil. Similar textiles have been found in Hedeby and Mammen, denoted *Schleiergewebe*. Finds of z/s spun yarn are rare in Norway in the Viking period; to date found only in a few graves.²⁷

Both the physical environments of the sunken-feature building, the finely woven textiles, the composite representation of textile producing equipment, and also production of spindle whorls and loom weights, reveal a specialised milieu where several people must have been working together, spinning and weaving, probably on more than one loom. The tools could also very well have been used to produce the fine and rather unusual textiles that were found. The weaving beater, an implement interpreted as a

precision tool used in the making of specific cloth type – particularly densely beaten together, using coarse threads of wool most probably, but possibly also flax,²⁸ is interesting in this milieu. There were, however, no traces of textile preparation at the site.

Stedje was one of the high status farms in the community. Another high status farm in Sogndal, *Kvåle*, had two weaving houses at the farm, according to a document from the early 14th century. Here, special buildings are also mentioned for male and female servants,²⁹ the latter perhaps involved in textile production. This was probably also the case at Stedje.

Bjørkum

At the margins of the farm *Bjørkum* in the inner part of the Lærdal valley in Sogn 130 m asl, a large multifunctional site of c. 2000 m² from the early Viking Age, c. 750–850 and with activities also in the latter part of the period, has been uncovered (cf. [Fig. 4.1](#)). The site is situated in a transition zone between the agricultural inland fjord district to the west and high mountains to the east, as a meeting place for utilisation and processing of different resources from different ecozones; areas for hunting and gathering as well as grazing and animal farming – and wool production. Bjørkum is an extraordinary site in a Norwegian context, with its agglomeration of buildings, including eight small three or two-aisled one-room buildings and altogether 13 pit-houses with traces of different kinds of craft production, indicating specialist functions, related to forging, bone/antler – and textiles. Of these, 10 pit-houses contained finds of textile production implements, especially for spinning and weaving.³⁰

The 23 spindle whorls that were found vary in weight from 5.4 g to 33 g, with a peak within the weight group 20–25 g ([Fig. 4.7](#)). The largest number was found in two of the buildings, 1 and 6, otherwise only one or two in each of the houses.

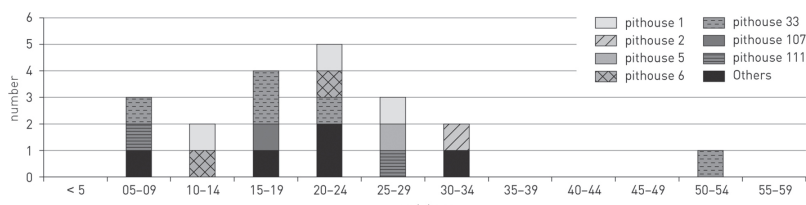


Fig. 4.7. Measurable spindle whorls in pit-houses at Bjørkum, by weight in weight groups of 5 g. N = 20.

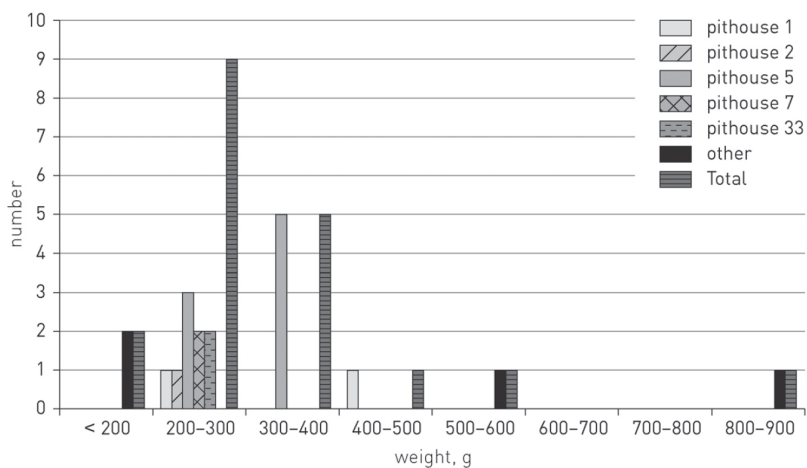


Fig. 4.8. Loom weights from pit-houses at Bjørkum by weight, in weight groups of 100 g. N = 24.

Of the 28 loom weights uncovered at Bjørkum, 19 were found in eight of the pit-houses with the largest assemblage in pit-houses 5 and 1 with eight and three weights respectively. In the others, 2, 4, 7, 33, 37 and 111, only one or two were found in each, and the rest in other contexts (Fig. 4.8). The measurable loom weights as for weight vary from 94 g to 872 g, the majority between 200 g and 400 g. The eight loom weights in pit-house 5 are fairly equal in weight, from 233 g to 384 g, but otherwise the numbers are too small to give a representative impression of the loom. Yet, their presence indicates weaving in many of the pit-houses. Five of the buildings (1, 2, 5, 6 and 33) were also used in combination with spinning, and as special areas for textile production.

Of other textile production equipment, 11 smoothers or possible smoothing stones were found in pit-houses 2, 4, 6, 37 and 490, and two in other contexts. Furthermore, 11 needles, or parts thereof, of bone and iron were found, again in the main environments for textile production at Bjørkum – five in pit-house 1, and in pit-houses 2 and 33 one each, and the rest in other contexts.

Comparing the weight distribution of loom weights in the sunken-feature buildings from Bjørkum and Stedje, a rather similar pattern emerges. Although the number of weights differs, they range from less than 150 g to about 800 g, with the majority concentrated around 200–400 g. Still, the sites represent rather different environments, where Bjørkum seems to represent a seasonal work place of communal character, judging by the light construction of the buildings, the many open air fire places and cooking pits within the settlement, and not least the number of buildings, tools, roughouts and different raw materials indicate a large scale industry based on surplus production, including textile production.



Fig. 4.9. Overview of the landscape in Vikadalen, where four buildings containing textile production equipment were found (Photo: University Museum of Bergen).

Textile production in outlying mountainous areas

Seasonal occupation sites in mountainous areas seem to have been rather common in western Norway in the Viking period and Middle Ages.³¹ During the last decades many shieling sites have been uncovered by large scale excavations carried out related to the establishment of new hydroelectric power. Many of the buildings contain traces of textile production.

Nyset-Steggje, Årdal in Sogn

In the Årdal mountains in Sogn, excavations have been carried out in nine different areas in four valleys leading up to the mountainous area *Nyset-Steggje* (cf. [Fig. 4.1](#)) located from 950–1300 m asl. in the climatic forest limit where the landscape opens up with wide areas for grazing ([Fig. 4.9](#)). Here, clusters of small one-room buildings of about the same size and construction as found at Ytre Moa have been surveyed and excavated. Generally, they have been connected to animal husbandry and dairy production as well as hunting and gathering but, judging by the tools in the buildings, they may also have played an important role in textile production.

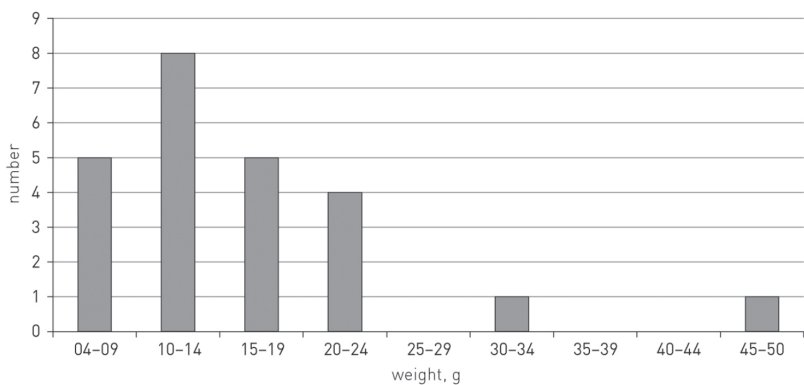


Fig. 4.10. Spindle whorls from Nyset-Steggje by weight in weight groups of 5 g. N: 24.

Altogether 16 of the 20 excavated buildings in these areas, dated mainly to the Viking Age and some into the Middle Ages, contained finds of spindle whorls and loom weights; 46 spindle whorls including roughouts, and 37 loom weights, also including fragments and roughouts respectively – but no other identified textile tools. In one area, Vikastølen with a cluster of four buildings dated to c. 700–900, representing one of the most extensive excavations that were carried out, all had traces of textile production. Two contained as many as 12 spindle whorls and 28 loom weights, including fragments and roughouts of stone, mostly steatite of varying shapes, similar to those found in the lowland. Many of the whorls were damaged and only 24 measurable as for representative weights (Fig. 4.10). Nearly all indicate spinning of very thin to medium thick threads, with only two of the measurable whorls weighing more than 30 g.

Compared with the other sites, the loom weights in the shieling contexts are generally rougher in shape, made of a harder mineral, and with a fair number of rough outs, and many broken and damaged. The few complete appear more or less in the same weight groups as in the lowlands but the damaged loom weights indicate a somewhat heavier range, above 400 g. Generally, spinning is far better represented than weaving – in nearly all the houses with traces of textile production – and weaving only in seven.

Textile production at a medieval farm

The coastal farm Høybøen, Fjell, Hordaland

One of the better investigated medieval farms in western Norway is located at the site Høybøen, Fjell in Hordaland, a marginal coastal farm, deserted c. 1350 and never worked again. The area was later included in a larger farm, Vindenes and used as an outlying area for grazing. In the two deserted longhouses at the farm, each had a room with traces of textile production, spinning

and weaving (Fig. 4.11). Altogether, 24 spindle whorls of different shape, size and weight were found. Of these, only 18 whorls have been retrieved; fairly light, medium to heavier whorls, varying in weight from 11 g to 58 g, most of them within the medium weight group (Fig. 4.12). The missing whorls do, however, seem to have been in the weight group 27–37 g.³²

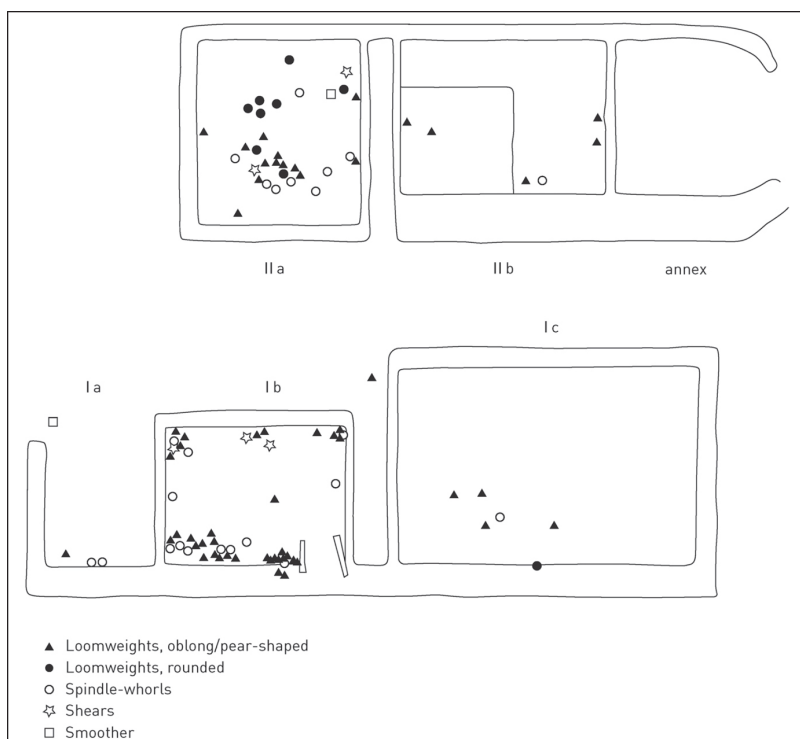


Fig. 10.11 Spatial distribution of textile tools at the Høybøen site: 72 loom weights, 24 spindle whorls. Buildings Ib, IIa and IIb are interpreted as dwelling rooms with zones for textile production; Ia as a workshop and Ic as a cowshed (Source: Randers 1981).

A considerable number of loom weights, altogether 74, complete and fragmented, were also found, of these 58 measurable as for weight – 31 and 27 in each room respectively. In room Ib, traces of 22 loom weights were found along the southern wall together with seven of the spindle whorls. Along the northern wall weights may indicate yet another loom and several spindle whorls were also found together with three pairs of shears. In room IIa the textile implements were located in the middle of the room, together with spindle whorls, two pair of shears and a possible smoothing stone. Judging by the spatial distribution, there seem to have been three looms in use at the same time. The loom weights here represent a wider range, somewhat heavier than the Viking Age weights, up to around 1 kg at the heaviest, and of about the same weight pattern in both rooms ([Fig. 4.13](#)).

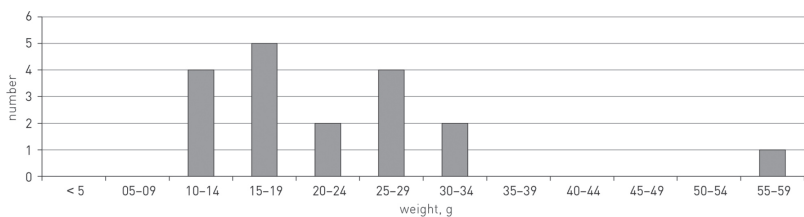


Fig. 4.12. Spindle whorls from Høybøen by weight in weight groups of 5 g.
N: 18.

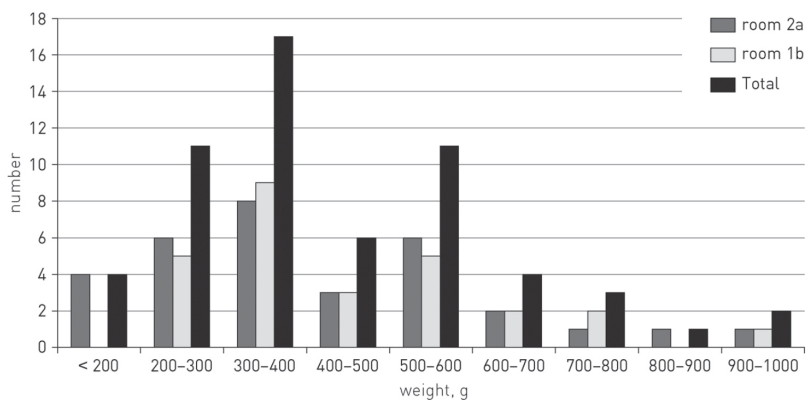


Fig. 4.13. Loom weights from Høybøen by weight, in weight groups of 50 g. N: 58.

Discussion

To what degree, then, have these six cases been able to demonstrate differences in textile production indicative of a multi-purpose domestic production or a more specialised surplus production? Has it been possible to locate textile milieus that produced the high quality products that have been found in Viking Age graves in western Norway or undertook larger tasks, such as production of sails? To answer these questions both tools and their contexts will have to be investigated more closely.

All the Viking Age sites represented are located in the inner parts of Sogn, where fjord landscapes are linked to mountain regions with rich pastures and grazing land. They are dated mainly to the 9th and 10th centuries, three of them stretching into the 11th century and one into the 12th century. The only medieval site represented is located further south as a coastal settlement close to the sea in the hinterland of Bergen. The six cases represent socially and economically different levels of society with different possibilities and requirements for textile products, which are also reflected in the tools, both in quantity and qualitatively. Altogether, the sites have left 413 objects for analysis: one wool-comb, 126 spindle whorls, 249 loom weights (including fragments and roughouts), two weaving beaters, 10 shears, 13 needles, and 12 possible smoothing stones. The objects have been found in different contexts: graves and various abodes, permanent or seasonal as is the case at Bjørkum and Nyset-Steggje (Table 4.1).

Sites	Context	Dating	Wool-comb	Whorls	Weights	Beater	Shears	Needles	Smoothers
Tokvam	Grave	9th C	1	3	28	1	1	-	-
Ytre Moa	5 buildings	9th-11th C	-	14	10	-	3	-	-
Stedje	Pithouse	9th-11th C	-	16	72	1	1	2	1
Bjørkum	10 pithouses	8th-11th C	-	23	28	-	-	11	11
Nyset-Steggje	16 buildings	8th-12th C	-	46	37	-	-	-	-
Høyboen	2 buildings	14th C	-	24	74	-	5	-	-

Table 4.1. Representation of textile-producing equipment at the six sites.

Sites	Spindle whorls (measurable weights)	Weight range (g)	Peak: weight group (% below 25g)	Loom weights (measurable weights)	Weight range (g)	Peak: weight group (% below 400g)
Tokvam	3 (2)	23–24	20–24 (100%)	28 (25)	140–447	300–400 (92%)
Ytre Moa	14 (14)	10–41	10–14 (57%)	10 (5)	223–834	300–400 (90%)
Stedje	16 (13)	5–28	10–14 (87%)	72 (49)	159–754	250–350 (61%)
Bjørkum	23 (20)	5–33	20–24 (70%)	28 (24)	94–872	200–300 (67%)
Nyset-Steggje	46 (24)	4–49	10–14 (92%)	46 (<10)	286–800+	?
Høyboen	24 (18)	11–58	15–19 (55%)	74 (58)	153–959	300–400 (55%)

Table 4.2. Representation of complete and measurable tools in relation to the assemblages of spinning and weaving implements at the six sites. Weight range and relative representation within the range is marked in brackets.

The assortments of finds are affected by the conditions for preservation as well as the way in which they have been deposited, accidentally through use and abandonment or intentionally as in graves. Generally, the find conditions have been unfavourable for organic material, which means that objects of stone and other durable material are overrepresented. Here, Bjørkum is an exception with exceptional find conditions for bone and antler, though rarely related to textile production. Consequently, spindle whorls and loom weights of stone are the most common manifestations of textile production, although some have been broken and discarded and some only left as fragments or roughouts, not always retrieved in the museum. Yet, the number of these implements, their extent and different weight groups should be indicative of the quality and extent of textile production (Table 4.2). Only the very lightest spindle whorls, around 5 g, were able to produce yarn as thin as documented in the high quality worsted textiles that have been found in several burials in my overall study area.³³ The spindle whorls around 20–30 g could produce a wide spectrum but not the thinnest threads. Spindle whorls around and above c. 30 g could also produce thicker yarn suitable for, for instance, sail cloth.³⁴

How many looms the loom weights represent is more difficult to assess as they are often only preserved as fragments. Altogether, the loom weights found may represent at the most 24 looms

according to the spatial distribution of loom weights within the structures: one at Tokvam, four in four of the buildings at Ytre Moa, possibly two in the sunken-feature building at Stedje, eight in the pit-houses at Bjørkum, six in the buildings at Nyset-Steggje, and three at Høybøen. This number may, however, be too high, as some of the looms are sparsely represented by loom weights, especially at Bjørkum and Nyset-Steggje, where the seasonal character of the production may have led to dismantling of the looms after the season. The numbers of spindle whorls related to looms reflect both the need of producing different qualities of yarn and the more laborious work of supplying yarn to the looms. Based on the estimate of looms, the ratio of spindle whorls to looms at the settlements would then be 3.5:1 at Ytre Moa, 2.9:1 at Bjørkum, 7.7:1 at Nyset-Steggje and at Stedje and Høybøen each with a ratio of 8:1, which is more in accordance with the effort of producing enough yarn for the weave.

Of the six sites, only the grave from Tokvam offers a possibility of assessing the tools in a closed assemblage. It also shows the broadest representation of the different work processes – preparation of wool, spinning, weaving and cutting. It also seems to represent a more completely loom than the other sites, with the most homogenous weight pattern, all lower than 450 g and most of them between 300 g and 400 g. Together with the spindle whorls, they indicate a production of fabrics of medium fine quality, which is also indicated by the textile fragment in the grave. While the Viking Age grave points to high status, the farm was apparently not among the largest of the area according to a later tax list, it is still recorded as an independent farmstead, probably hereditary land, so-called *oðal*.³⁵ Although, it is problematic to use this information retrospectively, it indicates an independent Viking Age farm above the average with an integrated textile production, probably for the household itself.

Three of the sites stand out with spindle whorls of the lightest category, around 5 g, able to produce the thinnest threads for high

quality products: Stedje, Bjørkum and Nyset-Steggje (Table 4.2). Of these, Stedje is represented with the lightest spindle whorls within a range of 5–c. 28 g. The weight group 10–14 g is the most common and altogether 87% of all the whorls weigh under 25 g. The spindle whorls from Bjørkum have a similar weight range to that of Stedje, but they are generally heavier, peaking at 20–24 g, and 70% weigh less than 25 g. The spindle whorls from Nyset-Steggje represent a wider range, the heaviest weighing more than 50 g, but like Stedje with a peak in the light weight group of 10–14 g, and a large majority, 92%, below 25 g. These differences, as well as the number of implements within the structures at the sites, signify differences in the textile producing environments and their organisation.

At Stedje, textiles were produced in a sunken-feature building that comprised more numerous and composite implements than the other sites, able to produce the thinnest high quality fabrics of high thread counts but also other fabrics of fine and medium qualities. High textile competence and know-how is also demonstrated in the finely woven textiles, which confirm that not only wool but also plant fibres were used in the production. At Stedje the textile production thus appears as more specialised, organised at a large scale on a high status farm.

Together with Stedje Bjørkum has the most homogeneous assemblage of spindle whorls, but they also indicate production of coarser fabrics. In contrast to Stedje Bjørkum also stands out as an area of craft production of communal character at a larger scale, where the majority of the pit-houses were involved in textile production. Altogether eight buildings had traces of looms with loom weights of a fairly wide weight spectrum. The tools, and especially the spindle whorls, bear witness to a production of varied fabrics from very fine to coarser textiles and although no weaving beaters were found, perhaps also sail cloth. Judged by the scale of the settlement and its industrial character, the raw material both for the textile production and other crafts must have

come from a wider resource area than the farm Bjørkum in itself.³⁶ That no traces were found of wool preparation may indicate that this was done elsewhere, probably in the Lærdal mountains, which may also explain Bjørkum's special location in the Lærdal valley as a nodal point between western and eastern Norway.

In contrast to Stedje and Bjørkum the textile producing environments in the Årdal mountains are spread over larger areas in places connected to other activities in an extensive shieling area. It seems that textile production – wool collecting, sorting, fibre preparation, spinning and weaving – was here combined for one thing with herding and dairying. At Nyset-Steggje, spindle whorls dominate among the tools and traces of looms were found in six of the 16 buildings with textile implements. The spindle whorls have the widest weight spectrum of all the cases represented (cf. [Table 4.2](#)), from under 5 g to nearly 50 g, able to produce yarn for a wide range of fabrics – from the thinnest qualities to thicker threads. The different groups of buildings in the Nyset-Steggje area were evidently connected to farms in the fjord districts of Årdal, Lærdal and Aurland, as was the case in later periods. The wide range of spindle whorls reflect their use in a multi-purpose textile production, aimed at supplying wool and yarn for different types of fabrics, including the same fine qualities as at Stedje and Bjørkum. The production was probably organised both as seasonal manufacture in the mountains in the summer and at the connected farms in the winter.

Two of the sites, Ytre Moa and Høybøen – farms deserted in the 11th and 14th century respectively – are represented with heavier spindle whorls within a wider weight range than the other sites, from c. 10 g to 41 g and 11 to 58 g respectively, and generally somewhat heavier at Høybøen. Still, about half of the measurable spindle whorls weigh less than 25 g at both sites. The loom weights also show a similar trend, somewhat heavier at Høybøen than at Ytre Moa, up to nearly 1 kg (cf. [Table 4.2](#)). Loom

weights above 800 g seem to be represented at sites dated later than c. AD 900 which is also in accordance with observations in other areas.³⁷ The implements then indicate spinning and weaving textiles of all qualities, except the very finest, and seemingly also courser products.

Of these, the building complex at Ytre Moa represents an atypical farm structure compared to the traditional three-aisled multi-functional longhouses of the period, and is more like the buildings and building clusters at Nyset-Steggje. That five of the buildings, and only two of them with a hearth, were used for textile production is also atypical. There are several contradictory factors as for its status and organisation. The many grave mounds close to the buildings at the site (cf. [Fig. 4.2](#)) and also different female status objects – a fibula and buckle of bronze and a pendant of silver to a necklace – found in three of the buildings with textile-producing equipment indicate a higher status than would be expected from the modest buildings and small arable land, and its early deserted status. It is difficult to decide whether it had a subordinate status to the larger farm Moa as later, perhaps as a special production unit, or was a farm of its own. In the early modern period, Moa appears as one the larger farms in the community of Årdal with a fairly large livestock,³⁸ probably also larger than documented in tax lists as farmers tended to under-register their stock.³⁹ Based on this information it would provide an annual yield of c. 35–70 kg wool from the sheep in addition to possible fibres from the goats, but this should be considered as minimum. The strategic location of Bjørkum and Ytre Moa at the crossroads of three mountain valleys with access to wider resource areas may have played an important role. This may also explain the emphasis on textile production at Ytre Moa, seemingly above the household level.

The coastal farm of Høybøen was also a strong textile producing location considering the size of the farmland and its later deserted status. At Høybøen, the arable land was only a

minor part of the area compared to the outlying resources. Here, the available grazing land, including heath land for winter grazing, has been estimated to have been able to feed a maximum of about 70 sheep, 6 lambs and probably 2–3 rams that could have produced a maximum of 120–175 kg of wool,⁴⁰ but probably somewhat less when taking into account sorting and other preparation. Yet, it is difficult to assess the number of sheep based on the potential for grazing and fodder. According to later information the number of sheep and goats at the farm Vindenes of which Høybøen was then a part of, was considerably lower.⁴¹

Like Ytre Moa, the houses seem to have been deserted with many of the more durable objects *in situ*. Their number of loom weights and their spatial distribution indicate altogether three looms in two of the rooms in the longhouses, and many spindle whorls of different weights too, able to produce yarn and fabrics of finer and coarser, but not the very finest qualities. The buildings appear to have contained two households, and quite a few people also seem to have been involved in textile production, probably for more than their own needs, although the textiles needed in a coastal environment were many. Finds of imported products within the buildings, among them ceramic drinking vessels and cooking pots,⁴² which are usually unearthed in urban contexts, may also indicate an economy based on a surplus that could be exchanged with such products.

Altogether, textile production appears to have been an important element at all the sites referred to. They all indicate an economy based on the extensive use of marginal land to maximise the output of the farms, beside the manufacture of textiles, also the production of iron, the taking out of minerals, hunting and gathering of the period.⁴³

The six cases presented here, represent different forms for textile production, scales and organisation. The grave-goods in the Viking Age burials at Tokvam clearly underline the importance of textile production at a farm with a socio-economic status above

the average. The sunken-feature building at Stedje with its various traces of production in a special working environment represents yet another context related to a high status farm and an estate economy with people of high competence for producing textiles of the best qualities. The extensive collection of pithouses at Bjørkum constituted an extraordinary environment for large scale textile production combined with other crafts in a rural context, evidently on a communal and seasonal basis. Its strategic position in the transition zone between the fjord and mountains and interregional road systems gave access to a wide range of raw materials for production. Like at Stedje, the people who worked here had implements to produce textiles of the finest qualities but coarser fabrics as well. Ytre Moa also represents a special working environment for textile production, with many parallels to the buildings at Nyset-Steggje, but at another altitude and on a seasonal basis. Although the textile work in the mountains seems to have been combined with other activities, the differences in spindle whorls, including the very lightest, reflect both high textile competence and a need of yarn of different qualities – also the thinnest of threads. The medieval site of Høybøen, located in coastal environments, reveals yet another strong textile producing environment, seemingly above the household level. By and large, the finds from all these rural sites demonstrate a relative extensive textile production, evidently based on transmitted know-how, high textile competence and a large labour input. The intensive use of outlying resources in the Viking Age and the later decline and desertion which started in the early Middle Ages and then escalated is also representative for a more general trend in the use of the outlying areas. It also corresponds with a general shift to textile production in the new towns.

Based on my earlier analyses of textile implements from the Viking Age proto-town of Kaupang in south-eastern Norway and medieval town of Bergen,⁴⁴ the last question I will consider, then, is to what degree these rural textile environments fit in or diverge

from the pattern of textile tools found in the proto-urban and urban medieval contexts as for their ability to produce textiles of different qualities.

In comparison, the material from Kaupang is far more fragmented than the rural cases presented here, as they to a large extent are of made clay. Representing a densely built community based on crafts and commerce mainly over period of about a century and half, from c. 800, the textile producing implements from Kaupang are more numerous and to some degree more comprehensive. Altogether 121 spindle whorls, probably some 470 loom weights, but only one weaving beater, two pair of shears and some needles, needle-cases and smoothing stones were unearthed within the settlement area, with some of the same problems as for preservation as the rural sites. The many burials surrounding the settlement also contained textile implements, altogether one-third of the some 400 graves. The analysis of the material from Kaupang showed that 69% of the measurable spindle whorls weighed less than 25 g, and 31% between 25 g and 35g, peaking in the weight group 20–24 g. Comparing with the corresponding weight distribution of spindle whorls from the rural sites (cf. [Table 4.2](#)), excluding the medieval whorls from Høybøen, three of them, Stedje, Bjørkum and Nyset-Steggje, have relatively more whorls under 25 g than at Kaupang, and several with peak in the lighter weight groups. At Kaupang 10% of spindle whorls weigh less than 10 g, the corresponding percentage for Viking Age the rural sites is as much as 15%. In the proto-towns of Birka and Hedeby the corresponding percentages are, however, somewhat higher, 18% and 19%.⁴⁵ As for loom weights, the majority of the relatively few measurable loom weights from Kaupang weigh between 300 g and 500 g, peaking between 300 g and 400 g. In this respect, they resemble the weight distribution from Bjørkum and Stedje. By and large, it is difficult to observe distinct differences between rural sites and the Viking Age town of Kaupang as for weight and ability to produce various textile qualities,

The medieval textile implements from Bryggen in Bergen comprise a far more varied material of wood and bone as well as stone and metals due to the good preservation for organic material. The comparable spindle whorls of stone, altogether 162 specimens, vary in weight from 6 g to more than 50 g with 62% under 25 g. Here, 11% of the stone-whorls weigh under 10 g.⁴⁶ At the medieval rural site of Høybøen, the measurable spindle whorls are somewhat heavier. They range from 11 g to 58 g with about a half under 25 g, also lacking the lightest group as found in Bergen. The loom weights or possible loom weights from Bryggen, 555 in all, have a wider weight spectrum than Høybøen, from under 100 g to around 1200 g. The majority, c. 80% weighs between 300 g and 900 g and only some 10% under 300 g.⁴⁷ The medieval loom weights, then, are generally heavier than the Viking Age rural assemblages and indicate a trend of weaving of coarser fabrics. The loom weights at Høybøen also represents the widest weight range of the six rural sites, up to 1 kg, but generally somewhat lighter compared to the general trend in the nearby town of Bergen. At both places the tools are made for a multi-purpose textile production. The dichotomy between rural and urban textile production may thus be exaggerated, at least in the early stages of urbanisation in Norway – and with no clear evidence of standardisation in the domestic production.

Concluding remarks

Seeing tools, textiles and environments as an entity – technology, resources and social organisation, a broader and more varied picture emerges. At this stage of my project, it is still too early to draw any firm conclusions. A wide range of textile qualities have been produced even at small and marginal farms and summer shielings in the mountains – and more specialised in some milieus. In areas with extensive utilisation of outfields and mountains for animal husbandry textile production seems to have played a key role in the period. The tools indicate a complex production of both

exclusive and average textiles, as well as coarser products, possibly sailcloth. They also indicate that textiles of the very high quality as found in Viking Age burials in western Norway could have been produced locally. The graves containing both tools and textiles are therefore an interesting source group for further analysis, and offer a unique opportunity to discuss the finished products in relation to the tools and the processes behind production.

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5. Brides, Donors, Traders: Imports into Anglo-Saxon England

Gale R. Owen-Crocker

Ælfric's premise

About the year 1000, the Anglo-Saxon scholar and abbot Ælfric wrote his *Colloquium*, a text for boys learning Latin in a monastic school. This is a semi-dramatic work, in that the boys speak the parts of characters in different occupations who are questioned by the *Magister*, the schoolmaster, and respond by describing what they do, thus providing the pupils with a range of Latin vocabulary. Among the characters is a *Mercator*, or Merchant, who tells us that he trades in “*Purpurum et sericum, pretiosas gemmas et aurum, uarias uestes et pigmenta*” (“Purple and silk, precious gems and gold, coloured [or possibly ‘various’] garments and dyes”).¹

The questions

This paper will consider firstly, whether this is a realistic picture of importation into 10th–11th-century England (as opposed, perhaps to some unrecognised literary borrowing); and if Ælfric's assumption about imports proves to be valid, whether there is evidence of organised and systematic trade in textiles any earlier in the Anglo-Saxon period.

It is generally accepted that after the withdrawal of the Romans from Britain and the Anglo-Saxon invasions, which began in the middle of the 5th century, urban life in England ceased, unlike the situation on the Continent: “Only in Roman Britain can urban life be said to have disappeared. Indeed ... even the street

pattern of Roman towns was lost”.² The conventional historians’ view of the early Anglo-Saxon period has been that after the end of Roman rule there was a break in regular contact with the civilised, Romanised world. Therefore, in the popular conception of early Anglo-Saxon England, textile production has been assumed to be almost entirely domestic, a product of village life. Experts on archaeological textiles, however, may modify this picture.

When foreign dress items are identified in early Anglo-Saxon culture, especially the sixth century, a common explanation is that they came as personal possessions of immigrants, especially brides; but it is worth considering if there could be a merchants importing and trading goods even at this early date.

Christian missionaries arrived in England at the end of the 6th century; and from the 7th century onwards personal gifts of prestigious textiles are documented, usually donations to the Church by royalty. It is desirable to question how the immediate donors acquired these items, whether by a chain of personal gifts or whether there was, at some point in the acquisition, a commercial transaction.

The Revival of Trade

Quentovic in France and Dorestad in The Netherlands were rising ports in the 7th century. The economic historian N. J. G. Pounds writes of them trading with Britain in the same chapter that he describes the loss of urban life in Anglo-Saxon England:

New commercial centres were formed, like Quentovic on the coast of Picardy, from which trade was conducted with Britain. ... outside the boundary of the former Roman Empire ... were to be found embryo merchants’ settlements, or *wiks*. These would have included Duurstede in the Rhine estuary.³

Although Frankish and Frisian merchants might have been trading up and down the North Sea coast, these ports were facing England and were in an appropriate position to trade in a westerly

direction with her. England was evidently receiving cargo, but in different places and in different ways from Roman Britain. Recent archaeological excavations show that the Anglo-Saxons were building up the Thames waterfront at what is now the Strand, in London, probably as early as the late 7th century since they were utilising trees felled between about AD 670 and 690;⁴ and that in York, there was a gravelled street at Fishergate by the 8th century.⁵ This indicates that these two revived Roman cities were already receiving regular merchant shipping again in the 7th and 8th centuries.

The port of Ipswich was probably established by the second quarter of the 7th century, since the distinctive ‘Ipswich ware’ pottery was made according to techniques probably introduced from the Rhineland, via Frisia, at about this time. Southampton, a thriving port in Roman and in later medieval times, was certainly occupied by the Anglo-Saxons from the 6th century and, in view of its strategic position and unusual double tide, it seems unlikely that it was not exploited by traders and travellers, even though no mercantile activity is documented about it from that early period.

In addition to old and newly-established ports, there were probably other trading points which lack documented evidence. As David Hinton has pointed out, archaeological finds of significant numbers of coins suggest trade was taking place at other localities, such as Whitby on the Yorkshire coast and South Newbald near the River Humber.⁶

Ælfric’s merchant

Let us first return to Ælfric’s Merchant and his trade in “Purple and silk, precious gems and gold, coloured garments and dyes”. Almost all of the items listed here, if known in England, would indeed have been dependent on importation. Silkworms were not raised in the British Isles and any silk had to be imported. This might take the form of silk thread for embroidery or for weaving narrow wares, or whole silk cloths used as garments, as hangings

or for other ecclesiastical purposes. The Anglo-Saxons did not mine gold for themselves, though they were accomplished goldsmiths. Gold objects from the early Anglo-Saxon period are plentiful because they were deposited as grave-goods. The varied composition of their metal suggests that the craftsmen were dependent on melting down old Roman coins and outdated objects. Ælfric's imports may well have included scrap metal for reworking as well as prestigious artefacts. They might, however, have included gold thread ready prepared for brocading and embroidery, in a form like the skein found in a Middle Saxon context in Southampton.⁷

The choice of the word *purpura* suggests prestigious imported material, almost certainly silk. This term was used for a type of cloth rather than simply for the colour purple: Anglo-Saxon churches owned vestments of red, green, white and black *purpura*, though none survives;⁸ C. R. Dodwell has suggested *purpura* was a thick, shiny silk cloth, possibly shot-silk taffeta, that is a taffeta with warp and weft of different colours.⁹ Frances Pritchard suggests that while this is "plausible", a silk of compound weave structure is a sufficient explanation.¹⁰

Ælfric also specifically mentions dyestuffs. The Anglo-Saxons themselves had access to certain vegetable dyes. They may have grown woad – which produces blue, but can also be the base for a range of colours,¹¹ and dyer's greenweed and weld, which produce yellow;¹² they also, according to Bede, knew of shellfish dyes from whelks or cockles.¹³ However, there is as yet no archaeological evidence that the immensely expensive Tyrian purple dye made from shellfish, or any other shellfish dye, was applied to textiles found in Anglo-Saxon England, or indeed in later medieval England.¹⁴ Kermes, made from insects,¹⁵ a dye which in the later Middle Ages was highly prestigious, was, on the other hand, known to the Anglo-Saxons as a dye on silk;¹⁶ this would certainly have been imported if the Anglo-Saxons were dyeing the silk themselves. It is more likely that the silk was

imported already dyed at this period. The Anglo-Saxons were working with madder – which produces red – from a relatively early period; it is found in rich graves of the 7th century¹⁷ and the remains of madder-stained dyepots have been recovered from London.¹⁸ This too was probably an import at this time.

Ælfric's inclusion of silk, gold and dyestuffs in his teaching text suggests that merchants importing such goods into England by ship were a regular part of late Anglo-Saxon society. Finds of archaeological textiles make this assumption seem reasonable enough, and push back the systematic importation of silk and gold to almost a century earlier than his text. Especially significant in this respect are the embroidered vestments recovered in the nineteenth century from the shrine of St Cuthbert, in Durham. A matching stole and maniple and the object known as Maniple II (which might originally have been a girdle or a pair of secular cloak ribbons), were worked in coloured silks and gold spun round a silk core on a ground of red silk. The stole and maniple have been firmly established as English work of the early 10th century: their art style, with its naturalistic but attenuated figures and acanthus leaves, is a precursor of the so-called 'Winchester Style' most often found in book illumination. The names of the donor, a queen of Wessex, and the original recipient, a bishop of Winchester, and the Anglo-Saxon letters ash (Æ) and eth (Ð) used to spell them, clearly suggest an English, specifically a Winchester, provenance for these embroideries. Made to the order of Queen Ælfflæd, they were probably donated to St Cuthbert's shrine on a documented visit by her stepson King Athelstan, in 934.¹⁹

They are not amateur work. They speak of a well-established tradition of working with silk, which must have been an imported material, and with gold thread, which very probably was, also. Like the skein of thread mentioned earlier, these embroidery materials might have been imported to Winchester via Southampton, which is just under 9 miles (14 km) distant.

The Durham embroideries were élite works, commissioned by a

queen, for the holder of the most prestigious bishopric in Wessex, and later donated by a king to the shrine of a premier saint. Other gifts to St Cuthbert's tomb made in the tenth century include imported silk cloths, fragments of which still survive: a magnificent Byzantine textile which has been named the 'Earth and Ocean' silk from its design;²⁰ and the so-called 'Nature Goddess' silk, which is thought to be one of two *pallia Graeca* documented as having been wrapped around St Cuthbert's body by King Edmund in 944.²¹

Yet it seems that in the 10th century silk was not only the prerogative of the rich, royal and ecclesiastical. Archaeological finds from Milk Street in London, which have been dated to this period, include silks which were probably imported ready-woven. There were, for example, two undyed tabby-woven textiles probably woven in the Byzantine Empire; a tabby-woven ribbon which Frances Pritchard suggests came from "further east", and a weft-faced compound twill cloth with weft threads of red, white and blue which she suggests came from central Asia.²² Clearly silk cloth was also being imported for tailoring and dyeing locally. Caps made of silk were being worn, probably by secular women, in York, Lincoln and Dublin.²³ The caps were probably made in Britain from rolls of imported material, and, if they were coloured, individually dyed. The style of the caps was probably Scandinavian; in Dublin, wool as well as silk examples have been attested.²⁴ Silk was re-used economically: a kermes-dyed, samite reliquary pouch found in York was probably cut from a larger piece of silk.²⁵

Garment-makers were also using silk narrow wares to finish off their tailoring. A red ribbon from Coppergate, dyed with kermes, had probably been used to edge another textile, which was likely to have been wool.²⁶ A linen garment from Llan-Gors in Wales was both embroidered in silk and trimmed with it: a silk cord covered the seams and edged the hem and there was a belt loop of silk ribbon.²⁷

There are also remains of narrow wares which had probably been made locally from imported material: part of a cord and a braid from London.²⁸ A narrow tablet-woven braid from Coppergate, York, shows how frugal local weavers could be with imported materials: it was partially made from silk, but had one warp thread and its weft made from vegetable fibre, suggesting that local weavers eked out silk threads with less expensive materials.²⁹ Silk, then, was something the Anglo-Saxons would have been used to seeing and working with in Ælfric's time. It was a valuable commodity, not to be wasted, but there was plenty of it in use.

Earlier imports of silk

Silk was already known in Anglo-Saxon England by the mid-6th century, having been found in archaeological context on a brooch of Frankish origin at Dover Buckland II, Kent, and possibly as brocading thread on tablet weave from Norton-on-Tees (in the former county of Cleveland, now Co. Durham).³⁰ In the 7th century silk is attested again on what may have been an amulet in a male grave at Tattershall Thorpe, Lincolnshire.³¹ It may have been used as embroidery thread in a male burial at Kingsworthy.³² At the end of the 7th century or the beginning of the 8th, Aldhelm was criticising people vowed to the ecclesiastical life for extravagant dress that included silk sleeve edgings.³³ A garment identified by Hero Granger-Taylor as a dalmatic, found in the tomb of St Cuthbert, had been assembled in the 8th or 9th century from several silk materials, including white Italian cloth, green and red silks used for binding seams and two multicoloured Asian silks used for bindings and facings.³⁴

Other imported textiles in late Anglo-Saxon and Anglo-Viking England

We have so far considered the kind of luxury textiles and dyestuffs which Ælfric and his pupils might have seen, and worn, on high

days in the church. It is also worth considering whether there was importation of textiles in other materials and if so from where. The mercantile people best recognised by Anglo-Saxon writers are the Frisians. They were resident in England by the 8th century. Bede (c. 731) records the sale of a noble-born captive to a Frisian in London; Colgrave and Mynors' note implies that the purchaser was a slave trader, rather than an employer of slave labour.³⁵ Frisians are documented as living in York in the 8th century; they had to leave in a hurry and be repatriated when a Frisian merchant killed the son of an influential man. The episode is recorded in the 9th-century life of a Frisian ecclesiastic who was studying in York at the time and was evacuated for his own safety.³⁶ A seafarer mentioned in an Old English gnomic poem is evidently Frisian (or at least has a Frisian wife).³⁷ Frisian visitors and ships were evidently familiar in King Alfred's reign: the king built warships of a design that differed from both Frisian and Viking vessels ("... *næron nawðer ne on fresisc gescæpene ne on desinsc, bute swa him selfum ðuhte þæt hie nytwyrðoste beon meahen*"); and three named Frisians were among the casualties of Alfred's household in a subsequent skirmish around grounded ships.³⁸ It seems likely that there was already regular trade from the Low Countries in Anglo-Saxon times,³⁹ and textiles may have been among the items they traded. Frisian textiles were evidently well known for being colourful. Charlemagne's biographer Notker describes the emperor sending to the ruler of Persia expensive cloaks from Frisia of white, grey, crimson and sapphire-blue;⁴⁰ so the *uarias uestes*, the 'coloured garments' which took Ælfric's eye may not have been silks, they may have been Frisian-traded wool cloths. Of course coloured clothing would have struck a monk, who was used to being surrounded with natural undyed wool garments.

Some unusual fine (20Z × 18S) wool textiles of broken diamond twill, with Z spinning in one direction and S in the other have been tentatively identified as Frisian.⁴¹ It may be no

coincidence that three medium-fine twills, two from London and one from York, were dyed a rich purple from lichen.⁴² Frances Pritchard has suggested a function as leg bands in the case of the London textiles.⁴³ The brightly coloured items of Ælfric's text might not have been cloaks, therefore, as the modern scholar tends to suppose, but might have included more utilitarian items, like garters. Isotope analysis of wool derived from the York purple wool did not point to Frisian origin⁴⁴ but they might have been imitations of colourful imports, locally made.

Linens have also been suggested as continental products imported via Frisia, a trade which may have continued even after the Vikings sacked Dorestad in the mid-ninth century.⁴⁵ From York a honeycomb weave⁴⁶ and a plaited diamond mesh⁴⁷ have no parallels in England – most linens found there are tabby. The mesh was attached to a tabby-woven border, and both these rare textiles were part of a composite object along with tabby and twill linen textiles. The whole artefact had been carbonised and it is impossible to distinguish its original function. Penelope Walton Rogers suggests these are Rhineland products, coming, along with quernstones and Rhine wines, via Frisia – there is plenty of pottery evidence in York for the transportation of wine.⁴⁸

Isotopes apart, although the Frisians may have given their name to a cloth they famously traded – and *pallium fresonicum* is documented several times – they did not necessarily produce it. In order to trade there needs to be a surplus, and an interesting insight into where that surplus might have come from is provided by the economic historian N. J. G. Pounds, who points out that the monasteries of Austrasia (the eastern part of the Carolingian empire) were paid enormous dues by their peasant tenants, which came in the form of linen and woollen cloth, as well as bundles of flax, far exceeding the amount the monasteries needed. He suggests this was picked up and traded by the Frisians.⁴⁹ If this was so, the Church was an important link in the early medieval commercialisation of textiles.

Imports into early Anglo-Saxon England?

While it is likely that most simple weaves of the earlier Anglo-Saxon period were domestic products, some rarer textiles, which might have been imports, occur among the archaeological textiles found in association with metalwork in graves. The weave known as ‘summer-and-winter’, which has a different pattern on each side and which seems to have been used for bed covers, was probably imported from the Mediterranean world, possibly by the Atlantic coastal route into western England.⁵⁰ The diamond twill with a small pattern repeat known as ‘rosette twill’ was almost certainly made in the Frankish-controlled Rhineland and introduced into England in the 6th century via Kent; yet it has been found as far west as Winklebury Hill in Wiltshire, as well as Finglesham, Kent, so it was distributed over a considerable distance. These weaves were also probably covers, and, since they were prestigious textiles, were on show at the burial ceremony, the Winklebury Hill example possibly draped over a coffin.⁵¹ Spin-patterned linen tabby may have been imported by the same route in the seventh century,⁵² and fine z/s spun diamond twills which have been suggested as imports in the late Anglo-Saxon period occasionally appear as grave-goods in the earlier period too. Some of these have been tentatively identified as *pallium fresonicum* (‘Frisian cloth’).⁵³

There are other possible imports. Tapestry weaves, found in high-status, 7th-century, male, barrow burials at Sutton Hoo, Suffolk, Taplow, Buckinghamshire, and Banstead Down, Surrey, may have been imported furnishing fabrics, though they might have been of native manufacture.⁵⁴ Pile weaves, also found in high-ranking, 7th-century male, barrow burials (Sutton Hoo, Banstead Down and Broomfield, Essex) may be ‘shaggy cloaks’ which were, later at least, made in Iceland and Ireland, though pile weave was an eastern invention.⁵⁵ The rectangular cloaks which were the norm throughout the Anglo-Saxon period were versatile and could be worn on the body or draped over a bed – or,

in these cases, a grave assemblage; so again these rare textiles may have survived because they were displayed as covers at burial.⁵⁶ Pile-woven fabric may have also been used for a cap at Sutton Hoo.⁵⁷

It is possible to suggest the incidence of other imported textiles from associated, non-textile objects. Metal wrist clasps are found in female graves in Anglian areas from the last quarter of the 5th century and throughout the 6th. They evidently fastened cuffs of tablet weave or, more rarely, leather, and kept the sleeve tight. Probably the sleeve was attached to a blouse or shirt worn in association with a 'peplos'-type gown. Clasps are found in Scandinavia too, but there they accompany male skeletons as well as female and they fasten men's trousers at the ankle as well as sleeves at the wrist. John Hines's detailed study proposed that the fashion for wrist clasps was brought to England by brides from southern and western Norway, women rather than men.⁵⁸ Yet there is no documented evidence of an influx of Norwegians in the 6th century and no logical reason why brides and not husbands should have arrived. It seems more likely that prototype clasps were first brought by merchants. The styles of clasps may have been copied and adapted by British metalsmiths and become popular among Anglian women, but the fashion change might as plausibly be attributed to a commercial venture as the rather romantic notion of foreign brides. Whatever way they originally arrived, it seems possible that the clasps were accompanied by prototype tablet-woven wrist bands.

Bridal finery has featured also in discussion of the gold brocading that is found at the heads, and occasionally at the wrists, of high status women in Kent (and in a few individual graves elsewhere with Kentish artefacts). This gold brocading is a late 6th-century fashion. The gold fillet was popular in Merovingian and Carolingian Frankia and was particularly used for high-status brides;⁵⁹ but that does not necessarily mean that the women buried with these accessories in Anglo-Saxon England

were recent brides, or Frankish women, or even that they were wearing fillets.⁶⁰ The bands brocaded with gold could have been commercially imported luxury goods. Only the gold-work of these brocaded bands survives; their textile foundation, which was probably tablet-woven, has disappeared. Since the gold strip which decorated these bands was an expensive luxury, this missing textile might well have been silk,⁶¹ and, like the technique of gold brocading and other dress fashions manifested by wealthy Kentish women, imported from Frankia.⁶² If so, the gold brocaded bands of 6th-century Anglo-Saxon England would be an early manifestation of the merchandise Ælfric recorded: silk and gold.

Never suggested as bridal wear, but again a feminine accessory of the 6th century, is the pouch attached to a ring of ivory, a cross-section of elephant tusk.⁶³ Quite widely distributed, but rare in their individual contexts, these bags have been interpreted as the possessions of ‘cunning women’, healers or magic makers. They generally contained characteristic amuletic items, including something old, some glass and probably also herbs. The attachment to one such ring of an unusual textile, a simple tapestry weave, possibly a product of the Middle East⁶⁴ suggests that it was not the elephant ivory alone that was the import, but the bag that was attached to it. The ivory bag frame may have been completely concealed by leather or cloth. The Anglo-Saxon owners may never have known they possessed a material which today is expensive and exclusive. They certainly never saw an elephant and may not have known of the animal’s existence. These ivory-framed bags are uncommon enough to have been the cargo of one single enterprising merchant, who peddled his wares around Anglo-Saxon England.

Textiles from the Sutton Hoo Ship Burial (deposited 595–640) include some of exceptional quality which may have been imports, such as the fine glossy pile weave (SH10), already mentioned, possibly dyed yellow, which might have been eastern Mediterranean and which may have been made into three

cloaks.⁶⁵ King Rædwald of East Anglia (d. 625), whose funeral ship this very probably was, may have acquired his Byzantine silver with its Christian emblems from King Ethelbert of Kent, who was his godfather on his rather nominal conversion to Christianity. Perhaps some of the unusual textiles in the Ship Burial came from the same source, but the question needs to be asked, whether they were they personal gifts to Ethelbert or commercially imported. Given the proximity of Kent to the Continent, and Ethelbert's cultivation of close links – his first wife was Frankish – and the fact that Christian missionaries were able to make the journey to Kent from Rome via Gaul in 597, it seems quite likely that there was regular traffic across the Channel at that time. Imports may also, of course, have come direct to East Anglia, further north, rather than via Kent in the south-east corner of England. They might have come in at Ipswich perhaps, which like Sutton Hoo is in the modern county of Suffolk. The Sutton Hoo king's sword blade was Frankish, and the coin collection in his purse was all Frankish money, implying extensive contact with Frankia. On the other hand, Rædwald's Swedish ancestry meant that many of the heirlooms buried at Sutton Hoo – such as the helmet and shield – were of Scandinavian origin and some of the textiles may have been too: particular candidates are the pile-woven textile and a soumak weave on what may be an eastern ground cloth. This could be evidence of continued Scandinavian tradition at a court now settled in England; or products of trade between East Anglia and a homeland still fondly remembered.

It is quite reasonable to suppose that textiles of exceptional quality may have been diplomatic gifts, although as Robin Fleming acutely observes, gifts of exceptional silks which reached England may have been hand-me-downs from popes or German monarchs who were better placed than the Anglo-Saxons to receive these exclusive products as gifts from Byzantine emperors.⁶⁶ Such exceptional textiles might include the 'Earth and Ocean Silk' from the tomb of St Cuthbert, which Hero Granger-Taylor considers of

royal and Byzantine origin, suggesting that it was imported into western Europe via Charlemagne.⁶⁷ Another might have been the textile from Ancyra (modern Ankara, Turkey), recorded by Bede to have been a personal gift from Pope Boniface V to King Edwin, an early 7th-century convert and king of Northumbria.⁶⁸ However, such exclusive ownership by famous people is not necessarily true of all textile gifts. Fragments of a silk from the tomb of King Edward the Confessor (who died in 1066), were recovered in the 17th century. The textile is undyed, of weft pattern tabby weave, with a pattern of roundels containing pairs of panthers and griffins, with pairs of doves and falcons between. In 1982 Krinje Cigaar suggested that it was a prestige gift, perhaps received on the king's coronation back in 1042, and that it commemorated direct links between the king and Byzantium.⁶⁹ Hero Granger-Taylor, however, in 1994, considered it a less rare, less high quality type of silk than Cigaar had argued.⁷⁰ It is worth noting that King Edward was the recipient of a lavish coronation gift from his most powerful subject, Earl Godwin, in the form of a warship, with prow and stern of gold and red and gold sails. In view of the extravagance and showiness of this gift it is surely not too farfetched to suggest that the patterned silk, expensive and prestigious, but not, if Granger-Taylor is right, exclusive, might also have been a gift from an aspiring subject. If so, one might question how the donor acquired it: he probably bought it, directly or indirectly, from a merchant.

Trade routes and emballage

There were several potential trade routes to Anglo-Saxon England. Although the western Mediterranean was dominated by Islamic people for most of the period we are considering, the Atlantic seaway remained a route to England for Mediterranean products like the summer-and-winter coverlets. Byzantine silks were carried by sea to Italy. By the late Anglo-Saxon period silks were also being made in Italy. Italian imports and products could be

transported by road and river to northern Europe and then direct across the English Channel and the North Sea from the Carolingian Empire to England.⁷¹ Vikings, on the other hand, may have acquired silk by a northerly route, via their trading towns of Novgorod and Kiev. The Russian trade routes would have given them access to the Silk Road that led to China, and also to Byzantine goods.⁷² Vikings were also raiding Spain so they may have had access to Islamic silks. Their goods may have crossed the North Sea from Frisia, along with artefacts from the Rhineland and southern German lands. Anglo-Vikings may also have imported direct from Scandinavia.

There may have been many indirect and unpretentious textile imports too: imported goods would have been wrapped in cloth for transit. Coins would have been bagged, precious metals packaged; textiles themselves would have been wrapped in other textiles. It would have been sensible to use soft goods in sacks to cushion breakables; and as the merchandise rattled on unsprung carts and tossed on the sea it would have been covered with cheap and coarse cloth just as it was in the later Middle Ages and early modern times. Industrial weight textiles for utilitarian purposes like this were produced from at least the eleventh century; but old cloth, unfashionable cloth, any unwanted cloth, might have been used for packaging; the Bayeux Tapestry narrowly escaped such a fate in 1792.⁷³ The fragment of textile impregnated with tar described by Elizabeth Hackett⁷⁴ suggests that tarpaulin was not, as has been assumed, a 20th-century invention but was waterproofing merchandise in the early Middle Ages.

Conclusions

Imported textiles may have arrived in Anglo-Saxon England within a century of the Anglo-Saxon settlement, as early as the 6th century, though most utilitarian cloth and some higher quality materials were probably of local manufacture. Silk, certainly imported, though extremely rare in the archaeological picture,

first appears in England in secular context in the 6th and 7th centuries. This is remarkable, since the secret of silk was only transmitted to Byzantium in the 6th century; before this any silk fibre which found its way to the West was Chinese or Persian.⁷⁵ Imports of silk would increase with the influence of the Church from the 7th century onwards and by the end of the Anglo-Saxon period silk was common among prosperous seculars as well as an acknowledged part of Church wealth, both for narrow-ware trimmings and in the form of complete garments. Unusual wool and linen textile fragments from the early Anglo-Saxon period may also have been imports. Where they are found in high-status contexts, importation is most plausible, but other contexts have also produced cloths which are relatively rare in Anglo-Saxon England. Most imported textiles must have arrived via Frankia or Frisia. Frankish luxury items are common in the archaeological picture of the 7th century and high status textiles may have been among them. There is considerable English documentary evidence for the presence of Frisian merchants as early as the 7th century. Anglo-Saxon ports were being developed in similar, if not identical, locations to Roman ports by the 7th century and there were new trading points appearing at the same time, not all of them documented textually. Apart from cross-Channel and North Sea trade direct to Frankish and Frisian areas, there was also the Atlantic sea route bringing Mediterranean products into western Britain, and evidently direct contact with Scandinavia as firstly, Anglian and other northern immigrants, and, later, Viking settlers, maintained contacts with the North. By the late Anglo-Saxon period the importation of textile seems to have been as regular as Ælfric suggests, but the luxury purples and silks he lists were far from the full story: wool and linen textiles may have been among the items traded, and it is the Frisian imports which may have provided some of the most colourful items. Vegetable dyes and, as a rare luxury, kermes, contributed to the hues, and some of the textiles Ælfric saw could indeed have been what today we would

describe as purple; but his terminology needs to be translated with caution. The modern reader needs to rein in and adjust his imagination in translating Ælfric's text. Commercial imports included not only expensive cloaks of silk, but also useful ribbons and bands for trimming; not silks of Tyrian purple but lichen-dyed woollens and linens. However, *purpura* – a luxury silk cloth which came in many colours – undoubtedly reached England, and so did gold, which sometimes enriched textiles even further.

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6. Silk Trade to Scandinavia in the Viking Age

Marianne Vedeler

Silk textiles from the Viking age are a small but exclusive group of archaeological finds in Scandinavia. The silk fragments are produced in many different qualities. The majority of silks have been interpreted as either Central Asian or as made in the Byzantine production area, that is in Constantinople, or in associated areas in the eastern Mediterranean region.¹ A few fragments from Birka have been interpreted as Chinese silk.² Great emphasis has been placed on the Swedish Viking's strong ties to the Byzantine Empire in the 10th century and thereby the trade on the westernmost of the Russian waterways. Archaeological sources give no reason to believe that the distribution of silk to the Scandinavian areas is a result of trading along one single route. I will argue that both the two major eastern trading routes along the Russian rivers Dnjepr and the Volga-Oka region are likely routes for the arrival of silk to both Oseberg and to Birka. Archaeological evidence and written sources give reason to regard the trading and gift exchange of silk as part of more complex systems of distribution crossing military, ethnic and social boundaries.

In Scandinavia I have so far registered 23 archaeological sites with finds of silks dating to the 9th and 10th centuries, in most cases from graves.³ This includes both silk fabrics and silk thread and lan-cores used in embroideries. In addition there are several graves with finds of fibres assumed to be silk but not yet identified. Many of the sites revealed only one or a few fragments

of silk. The largest concentration of graves is in Birka in eastern Sweden where 49 graves, according to Agnes Geijer, contained silk.⁴ The largest concentration of silk in a single grave was, on the other hand, found in Oseberg, where over 100 fragments of samite silk from different fabrics were preserved.⁵ Altogether five sites are located in present-day Norway, eight in Sweden, seven in Denmark and two in Finland⁶. Here we take a closer look at the largest concentrations of silks, namely Birka in southern Sweden and Oseberg in southern Norway.

Oseberg

The Oseberg grave chamber is dated by dendro-chronology to the year c. 834, giving the silks this year as a *terminus ante quem*.⁷ Margareta Nockert published the Oseberg silks in 2006. She identified 15 different fabrics.⁸

The majority of fabrics from Oseberg are relatively simple samite products with irregular pattern repeats and many weaving mistakes. All of them have single z-spun inner warp and weft without spinning. Unlike most other similar products they also irregularly have some z-spun weft threads. Nockert interprets them as Central Asian products.⁹ Patterns with the *Shāhrokh* duck in fabrics 1–7 and the alternating colours in the weft (lattè) make this interpretation plausible.¹⁰

Two of the fabrics were interpreted by Nockert as having been produced in Byzantine workshops or in the eastern part of the Mediterranean area associated with Byzantine silk production¹¹. These are evenly woven samite fabrics of medium to high quality with single z-spun warp and weft without spinning. Both patterns and colours are close to patterns presumably used in Byzantine workshops. New HPLC-analysis revealed that one fabric (No. 12) has been dyed with a combination of madder and the precious dyestuff from *Kermes Vermilio*, which strengthens this argument.¹²

Birka

The majority of silk containing graves from Birka are dated to the 10th century. Of 49 graves, 37 are dated to this period while 12 date to the 9th century. The fabric type by Geijer called S4 dominates in both centuries and is the most common type represented in all graves.¹³ This is a type of samite with z-spun main warps and weft with no traces of spinning. Unlike the Oseberg silk fragments it has a double main warp. The S4 group contains several different degrees of coarseness in the weave. Geijer noticed that some fragments seemed mono coloured while others bore traces of pattern.¹⁴ This could very well be caused by differences in preserving condition, as seen in the Oseberg silks.¹⁵ Geijer explains the arrival of the most common type called S4 with strong connections with the Byzantine Empire.¹⁶ A coarser and more uneven woven quality of similar samite was separated by Geijer in a singular group called S5 with patterns showing similarities with some of the Oseberg fragments regarded as Central Asian products.¹⁷

In one of the Birka graves, a very special find appeared. This is a fabric of two-coloured silk damask, with a pattern of stars and dots.¹⁸ The threads of raw silk bear no traces of spinning in either warp or weft. This silk, the only one of its kind so far found in Scandinavia, is probably produced in China.¹⁹ Two different qualities of raw silk tabby were found in four of the graves in Birka.²⁰ The fabrics bear no traces of spinning in warp or weft.

Silk Trade

Following the major routes of exchange, the eastern silk could have come to Scandinavia either from the Baltic areas through the Russian waterways, or through trading stations in Western Europe.

When the burial mound at Oseberg was raised in AD 834, the town Kaupang in Vestfold was located about 44 km south of Oseberg. The precious silk could have come through Kaupang or other nearby trading centres to Oseberg. Recent excavations have revealed traces of extended trading with goods from the Caliphate

and Mediterranean lands in Kaupang in the 9th and early 10th century. This includes glass beads, cornelian and rock crystal beads, coins and probably also ingots of copper alloy. All types of beads found in Kaupang were probably imported to the town from the first half of the 9th century onwards.²¹ Archaeological finds of coins shows a flow of Islamic dirhams into Scandinavia dated to around c. 800 to the last quarter of the 10th century. The coins were primarily produced in the Abbasid and Samanid caliphates, but a number of dirham imitations found in Scandinavia were also struck in Bhulgar, an important trading hub situated on the Volga route.²²

Fifty-nine coins found in Kaupang can be dated to the 9th and 10th centuries.²³ The place of minting has been identified for 40 of them. Nearly 50% were minted in Central Asia, most of them in places well-known for silk production like Samarkand and Tashkent.

Dagfinn Skre argues that the goods probably arrived at Kaupang through two different routes. An eastern route was probably in operation from the Caliphate via eastern Scandinavia throughout the town's history. Another route, arriving through the Frisian lands, seems to have been in use in the early 9th century. At this time, Anglo-Saxon and Carolingian towns along the North Sea coasts declined and the North Sea trade seems to have collapsed, leading the surviving towns to focus on trade through the Baltic area.²⁴

If we look at the distribution of preserved eastern silk, over 1000 early medieval eastern silks have been found spread around western Europe.²⁵ Finds from Chelles and Sens in France, Rome in Italy and from Aachen and Trier in Germany are directly comparable to the samite silks from Oseberg.²⁶ Muthesius interprets two-thirds of the western silks as being of Byzantine provenance. Concentrations of Central Asian silk are particularly found in the Lowlands. Still, archaeological evidence in the Scandinavian region suggests that some of the most plausible

routes for trading silk to Scandinavia in most of the Viking age went through the Russian waterways and the Baltic.

There is reason to believe that Scandinavian merchants travelled through the newly established Rus areas in the 9th and 10th centuries. Even though the ethnic origin of the town's establishers is still a subject of controversy, a general growth of urban settlements with strong connections to Scandinavia took place both in the Baltic countries and in Russia and the state of Great Moravia between the 7th and 9th centuries.²⁷ The river systems of Volkhov-Lovat, Dniepr, Volga and Don formed a central nerve in communication and trade. From the Rus northern strongholds you could go either to the south, sailing along Dnjepr to the Black sea and finally reach Constantinople, or you could go further east, and along the river Volga to the trading hub of Bulghar connecting the northern trade with the northern silk roads in Central Asia and from there to China.

Archaeological excavations show that a line of strongholds was established in the Kiev area along the Dnjepr in the last two decades of the 9th century. Tax collection was probably a motivation for establishing these strongholds.²⁸ It has been suggested that tax collection could have slowed or even stopped the trade to Scandinavia by this route from the last decades of the 9th century till the mid-10th century.²⁹ But there is no reason to believe that the Kiev realm should have any motivation to stop Scandinavian trading by tax overload. On the contrary, strong connections between Kiev and Scandinavia mixed with more organised tax collection would probably make it easier to travel along the Dnjepr for Scandinavian merchants. If we are to believe *The Primary Chronicle*, most peace agreements made between AD 860 and 945 contain commercial treaties. From the agreement between Kiev Rus and the Byzantine emperor dated to c. 945, we learn that if a Rus merchant lost a slave on Greek territory he could be compensated by the payment of two pieces of silk per slave. At this time, Rus merchants were given the right to purchase

silk to the value of 50 bezants on the condition that the goods was registered and a receipt stamped by an imperial official.³⁰ Even if we do know neither the size nor the quality of these pieces of silk, it becomes clear that silk represented significant monetary values. Given the strong connection between Rus and Scandinavia, it is reasonable therefore to assume that at this time silk of various qualities could be sold directly to Scandinavian merchants in Constantinople and other times traded to merchants further north along the Dnjepr. Trade and manufacturing of high and medium quality silk was strictly controlled and already organised in guilds by this time.³¹

What about the eastern route along the river Volga? This route connected the northern trade with the northern silk roads and the silk producing hubs in Central Asia. The earliest archaeological traces of a Norse presence in the Volga area dates to the early 9th century, located south west of Rostov Velikij.³²

Later, at about the same time as the establishment of Rus strongholds on the shores of Dnjepr, settlements with distinct Scandinavian cultural components were established not far from Volga nearby contemporary Yaroslavl.³³ Even though they are not directly on the shores of the river, they show a Scandinavian connection with the areas north of the trading hub of Bulghar situated about 30 km downstream from Volga's confluence with the Kama River near today's Kazar.

It was in the town of Bulghar that Ibn Fadlan made his famous observation of a Viking funeral in the 10th century. Bulghar functioned as an eastern meeting point between north and east, a melting pot of different cultures and languages. On his journey to Bulghar, Ibn Fadlan travelled across the desert from Baghdad to Bukhara, one of the main production centres for Persian silk in the 9th and 10th centuries. Ibn Fadlan seems to have had a certain understanding of differences and variations in luxury textiles. He brought with him a lot of different textiles to be used as presents and tax payment on his journey. When describing the different

textiles and clothing items, he uses the name of the place of production. An example is his description of the presents he gave to an army commander he met on his journey, who among other things was given cloth from Merv.³⁴ Not only expensive fabrics from Central Asia seem to have been transported along this road. According to Ibn Fadlan, the Viking chief buried in Bulghar was equipped with costly fabrics of Byzantine origin on his last journey at the beginning of the 10th century.



Fig. 6.1. Oseberg silk. Photo: Marianne Vedeler

The complex trading relationship between areas of production in this period further complicates the interpretation of trading routes. In spite of strong political rival and competition in trade and silk production, both preserved silk fabrics and written sources show a strong interaction relating to pattern exchange and technology as well as trading and gift exchange between Byzantine and Persian areas. Potentially, this means that Persian silk could have been brought to Scandinavia via Constantinople and, maybe less plausible, that silk produced in Byzantine areas could have come by the way of Muslim trading centres. It is interesting to note that a trade regulation in Constantinople forbid merchants from Bhulgar to buy *Persian* silk of higher value when they were visiting the town. According to the *Book of Epharc* silk fabrics and clothing from Baghdad were among goods brought by Syrian merchants to Constantinople in the early 10th century. In addition, Islamic fashion in the form of garments “tailored in the Saracen style” was according to *De Ceremoniis* made in the Byzantine capital.³⁵

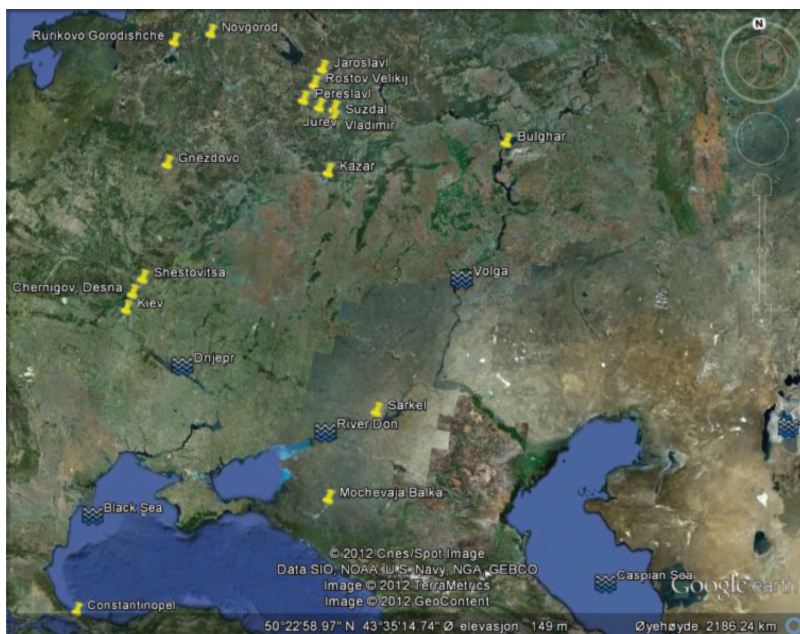


Fig. 6.2. Sites with traces of Scandinavian material culture along the Russian rivers after Wladyzlaw Duczko. Other sites mentioned in the text are also added.

There is also reason to believe that many of the town markets were regarded as multicultural meeting places. In several Arab sources, towns like Baghdad and Tashkent are described as cosmopolitan hubs of trade. A writer of the late 9th century describes the thriving trade in Baghdad like this: “There are not a people from any country but has a quarter in it, a place for the exchange of their produce, and a special district of their own. That which is not to be found in any other town of the world is brought together here”.³⁶

Silk trade between the Caliphate and the Byzantine Empire also led to diffusion and imitation of fashion. Arab sources written in the 8th and 9th centuries indicate a clear consciousness of Byzantine fashion among the people of Baghdad.³⁷ This indicates that not only physical products but also ideas and fashion to some extent were exchanged between the rivals. This makes it extremely difficult to know the specific trade routes the different types of silks came through.

Conclusion

Silk finds in Oseberg and Birka show that luxury goods from both Central Asia and Byzants were traded to Scandinavia in the 9th and 10th centuries. The archaeological and written sources show that some of the most plausible trading routes for these silks went along the Russian rivers.

Great emphasis has been placed on the Vikings’ strong ties to the Byzantine power through Rus and their participation in the Varangian guard in the 10th century.³⁸ Nevertheless, both the excavations along the Volga and Scandinavian coin finds minted in Central Asia also show a connection to the Central Asian production areas for silk through the Volga-Oka region. It is likely that both these routes were used for trading silk to Scandinavia. Silk trade and exchange of fashion ideas between the main areas of production makes it even more plausible that more than one

trading route was used. Silk trade was probably part of a complex and multidimensional system in which merchandise and gifts changed hands.

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7. Luxury for Everyone?

Embroideries on Leather Shoes and the Consumption of Silk Yarn in 11th–13th Century Northern Europe

Gitte Hansen

Abstract

Silk is traditionally regarded as an exclusive article, associated with society's social elite. Likewise shoes with embroidery are depicted in iconographical sources as part of the personal outfit of wealthy men and women within secular and ecclesiastic circles. In early medieval Norway (11th–mid-13th centuries) leather shoes with embroidery in silk yarn are common in urban contexts. With the large number of finds it is tempting to ask if silk and in particular silk yarn really was an exclusive luxury commodity for the few. With the point of outset in archaeological sources from Bergen, Trondheim and Oslo in Norway, it is shown that silk yarn was widely used for embroideries on leather shoes in Norway. In urban centers around the Baltic and the North Sea leather shoes with silk embroideries are also found. Silk yarn must thus have been an important low grade silk commodity already by the last quarter of the 11th century.

Introduction

Silk-embroidered leather shoes! The mere thought of such splendid footwear awakens images of society's elite. Silk, or rather silk cloth, is most often associated with society's secular and ecclesiastic elite and silk is traditionally regarded as exotic and

exclusive when dealing with the early middle ages of northern Europe and Scandinavia.¹ Likewise shoes with embroidery are seen in pictorial sources as part of the personal outfit of wealthy men and women.² In connection with my research on the life of early urban people in medieval Norway I was searching for prestigious personal accessories that could throw some light on the economic capacity of early urban dwellers in the 12th century town of Bergen, Norway.³ In archaeological research decorated shoes are often regarded as a sign of luxury or wealth⁴ and Arne J. Larsen's studies of footwear from the Gullskoen excavation site at Bryggen in Bergen, showed that among the many shoes, some were elaborately decorated with embroideries carried out in silk yarn.⁵ So I thought that shoes from the 12th century would be suitable as a point of outset for a study of townspeople's economy. The study, however, took quite an unexpected turn, as the share of embroidered shoes in the archaeological assemblages became clear. The present paper takes its point of outset in shoes from 12th century Bergen and addresses the question of silk yarn as a precious commodity in northern Europe in the early and high Middle Ages (c. 11th–13th century).



Fig. 7.1. Leather shoes with stitch holes/traces of embroidery. The shoes have three 'stripes' of embroidery from toe to instep as well as 'stripes' that make up a geometric pattern around the instep. The left hand shoe has traces of red and yellow silk yarn preserved. The right hand shoe, originally a shoe for a grown up, has been modified to fit a child. They date to respectively the last quarter of the 12th century and between the 1120s and c. 1170. Acc.no. BRM 0/44434 and BRM 0/85396/1. Photo: G. Hansen, University Museum of Bergen.

First, the frequency and variety of leather shoes with silk embroideries in 12th century Bergen is addressed, and with a view to parallel materials in Norway I'll discuss the possibility that the picture from Bergen is special. Then, through some examples of experimental archaeology, a late 13th century Norwegian price list and the reuse of embroidered shoes in the 12th century, an attempt is made to assess the value of silk yarn as a commodity during the early and high Middle Ages. Finally, through an estimate of the amount of yarn consumed in mid-12th century Bergen and a survey of the occurrence of shoes with silk-embroideries in northern Europe, the question of embroidery yarn as an important downgraded silk commodity is addressed.

The Bergen material

Bergen, on the coast of south-western Norway, was founded, most likely during the 1020/30s and by the 12th century the town was developing into an ecclesiastic centre and a living urban community with a broad variety of activities.⁶ From the 13th century and throughout the Middle Ages the town was known as Norway's largest centre of trade. With waterlogged culture layers, preservation conditions for organic materials such as leather are excellent in Bergen's medieval underground and with more than 150 years of archaeology in the town's merchant- and living quarters the archaeological material is considerable. The present study has its point of departure in the total assemblage of shoe-uppers from Bergen that can be dated to a 50 years period in the 12th century; between the 1120s and c. 1170.⁷ None of the shoes comes from a site that can be connected with the royal, monastic or ecclesiastic elite, rather the 12th century uppers stem from archaeological sites in the secular parts of Bergen, the 'town-area'. They comprise 636 out of all a total of 3150 objects of leather assigned to the 50 year period. Since they stem from several different properties and areas of town they are most likely quite

representative of the variety of shoes used in the town-area during the mid-12th century. Due to the Scandinavian climate it is assumed that most people, young as well as old, poor and rich, wore shoes at least during some parts of the year.

In the terminology used here a shoe has a sole and an upper, the upper runs from toe to instep and around the heel of the shoe; the forepart of the upper is between toe and instep. Many of the uppers have been decorated with embroidery. Most often embroidery yarn is not preserved, however, awl/needle-holes and lines scorched into the leather surface before the decorations were added are still visible (Fig. 7.1). They show that the embroidery patterns were composed of 'stripes'. The patterns span from a single stripe between instep and toe and/or around the top edge of the instep, to more elaborate figures made up of several stripes on the forepart, around the instep and around other openings of the shoe. In connection with Larsen's study of footwear from the Gullskoen area, natural scientific investigations as well as textile historic investigations were made of 38 shoes where yarn was preserved.⁸ The Gullskoen assemblage makes up for about half of all shoes found in the town-area of medieval Bergen and should be quite representative of shoe types found here. The preserved yarn was identified as silk (*Bombyx mori*).⁹ Inger Raknes Pedersen's textile historic study showed that silk yarn has survived on uppers with simple as well as more elaborate patterns. Of the simplest type of embroidery, where the pattern was not scorched into the leather before a single stripe was sown from toe to instep, Pedersen found no examples with yarn preserved, so we do not know if silk was used here.¹⁰ Judged by Pedersen's figures shoes with this type of embroidery are, however, rare and in all likelihood make up an insignificant part of the Bergen material. In one documented case silk may have been combined with yarn of an unknown type that left systematic empty spaces in the otherwise preserved embroidery pattern.¹¹ In Bergen one might expect that wool embroidery yarn would have been preserved, if it

had been applied; wool textiles have thus preserved quite well in the medieval culture layers, whereas textiles of vegetable fibres are not commonly found. If the latter had been used in embroideries they would thus, in all likelihood not have survived. Based on Petersen's observations that silk has been applied on all types of patterns, with the already mentioned exception I, however, find it probable that the majority of uppers with traces of embroidery have actually been decorated using silk yarn.

The fibres of the silk yarn were not spun, though some have a slight z-spin. The yarn was preserved in two colours; red and yellow. Petersen assumes that the yellow colour may be natural, whereas the red must stem from dyes.¹² The origin or content of the dye has, however, not been determined. The coloured yarn and the application of different stitch types seem to have been important for the overall appearance of the embroidery.¹³

The variety, relative value and frequency of embroidered leather shoes

Larsen's studies showed that many leather shoes were decorated with embroideries, and that there was a great variety in embroidery patterns applied.¹⁴ I have classified the embroidery patterns according to Larsen.¹⁵ Since some patterns require more yarn than others, some shoes must have been relatively more valuable than others, judged by the amount of silk yarn used. It is thus important to estimate not only the share of uppers with embroideries versus plain uppers, also the share of uppers in different value classes is interesting. Through drawings of preserved shoes I have measured the length- and number of stripes in the various embroidery patterns and in order to convert the measures of length to amount of yarn used I have carried out some experimental sowing.

An experiment

As a point of outset I assumed that the amount of yarn used in

embroidery depends on stitch type, width of the stiches, the number of stiches per cm and the thickness of the yarn. On the Bergen shoes cross stitch, satin stitch and raised fishbone stitch have been documented by Pedersen, and different types of stitch were often used in combination on the uppers. The stripes that form the central element of the patterns were 2.0–2.5 mm wide, but widths up to 4 mm have been measured. The preserved yarn was measured in a thickness/diameter between 0.7 mm and 1.37 mm. Pedersen finds it likely that the difference in thickness is due to preservation conditions¹⁶ thus 1.37 mm ought to be a minimum original thickness.

In the experiment modern silk embroidery yarn (*Ver a soire*) was used on cloth. In stripes that were 2.5 mm wide and 10 cm long, cross stitch, satin stitch and raised fishbone stitch were applied using embroidery yarn in three thicknesses: seven, five and three threads. There were six stiches per cm.

The thickness of the thread did not make a significant difference in the amount of thread used, as long as the number of stiches per cm was the same. With six stiches per cm and 2.5 mm wide stripes, 40 cm of thread was needed for a 10 cm long stripe of cross stiches and satin stiches, whereas 70 cm were needed for raised fishbone stiches. The stitch type applied is thus important for the amount of thread used.

Since the medieval embroideries show variations in stitch width, the number of stiches per cm as well as in the type of stiches applied it is not possible to be exact in the estimate of the amount of yarn used for the different patterns. Still, with the variety of stitch types seen on the same shoes in the medieval assemblage, an average of 50 cm yarn for each 10 cm stripe of unspecified embroidery stitch should be a quite realistic estimate for the amount of yarn used. According to this a 10 cm long stripe of embroidery from the toe to instep would require about 50 cm of yarn, and one stripe, c. 15 cm long, around the instep would demand c. 150 cm yarn. These measures are applied in the

following.

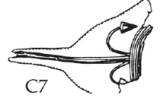
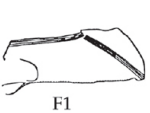
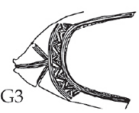
2 0,5-2,5 m	 A1  B1  A1
3 3,0-5,0 m	 C1  C2  C4  C6  C7  D1  F6  GA1  GF1
4 5,5-7,5 m	 A2  C5  F1  F2  F11  F11  G1  G4  G4
5 8,0-10,0 m	 D2  G2
6 10,5-11,0 m	 F3  G3

Fig. 7.2. Value classes 2–6 for shoe uppers based on the number of running metres of yarn required per shoe. These embroidery patterns are found in

Bergen between the 1120s and c. 1170. Drawing modified from A. J. Larsen 1992, pl. 1.

The relative value of the shoes

According to my measurements the 12th century embroideries required between 0.5 and 11 running metres of yarn for each shoe. Based on this, the shoes have been divided into six classes: (1) plain shoes that were not embroidered, (2) shoes where 0.5–2.5 m embroidery yarn was used per shoe,¹⁷ (3) shoes where 3.0–5.0 m yarn was used, (4) shoes where 5.5–7.5 m yarn was used, (5) shoes where 8.0–10.0 m yarn was used, and (6) where 10.5–11.0 m yarn was used (Fig. 7.2).

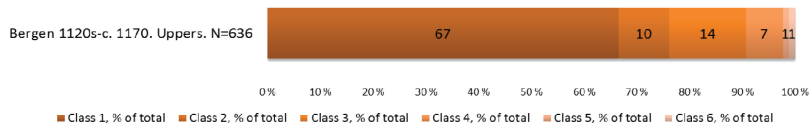


Fig. 7.3. Bergen between the 1120s and c. 1170. The distribution of shoe uppers according to value classes, in the town-area.

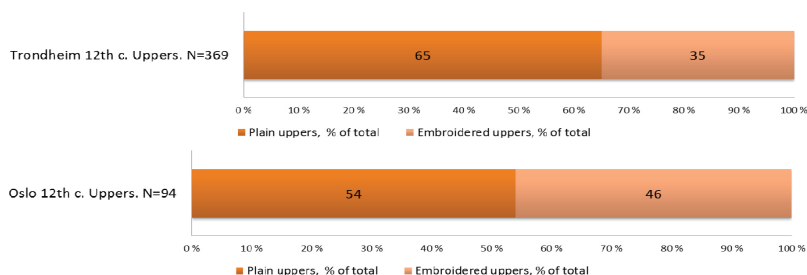


Fig. 7.4. Trondheim and Oslo. Shoe uppers with embroideries as a percentage of all uppers in 12th century phases at the Library site (Folkebibliotekstomten) in Trondheim and at the Mindets tomt and Søndre felt sites in Oslo. Numbers according to O. Marstein 1989, att. 1 and 2; dates according to Christophersen and Nordeide 1994, fig. 23; Schia 1987, 53 and fig. 65.

The distribution of uppers in the town-area of mid-12th century Bergen shows that 33% of all the uppers were embroidered, leaving 67% as plain. The least elaborate category of embroidery (2) makes up for 10%, categories (3) and (4) have shares of respectively 14% and 7% and the most elaborate categories (5) and (6) have a share of 2% altogether (Fig. 7.3).

If the majority of the embroideries have been carried out in silk and silk yarn was as exclusive as thought initially, the high proportion of embroidered shoes in 12th century Bergen is spectacular and, if we take the numbers on face value, Bergen was either very special and hosted very many rich people or, alternatively, silk and embroidery was not as exclusive as thought previously. Is Bergen special or was it common to have such large proportions of embroidered shoes in 12th century Norway?

We have studies of major Norwegian collections of 12th century shoes from the Mindets Tomt and the Søndre Felt sites in Oslo and from the Library site (*Folkebibliotekstomten*) in Trondheim.¹⁸ In the Oslo and Trondheim assemblages embroidered leather shoes are also found, however, in the published studies of the shoes, embroideries are divided into groups by sewing techniques applied, not by patterns.¹⁹ It is thus not possible to assess the distribution of shoes from Trondheim and Oslo according to value categories applied on the Bergen material, and a comparative study must be carried out on a more general level.

A crucial point is whether silk yarn was used in the two towns. According to Petersen stitch types and colour combinations of Oslo shoes that she has studied, are identical to those in Bergen.²⁰ As goes the Trondheim shoes yarn is referred to as 'silk' or 'red and yellow' in the nine cases where Oddlaug Marstein mentions preserved yarn in her assessment of shoes from the Library site.²¹

On this basis I assume that embroideries on shoes in Oslo and Trondheim were carried out in silk yarn as in Bergen. As for the

material from Trondheim, I have compiled Marstein's information on uppers of all shoe types and figured out the number of uppers with embroidery as a percentage of all uppers.²² Erik Schia's quantification methods in his study of uppers with or without embroidery in the Oslo material seem to be comparable to those used here for the Bergen material.²³

In the proportion of decorated shoes from the 12th century, Trondheim and Oslo correspond well with numbers from 12th century Bergen: As shown in [Figure 7.4](#), the share of embroidered shoes is 35% in the pure 12th century phases (5 and 6: N= 369) in Trondheim, giving an almost perfect match with Bergen's 33% (cf. [Fig. 7.3](#)). In Oslo, the proportion of embroidered shoes is somewhat higher (46%) in the pure 12th century phases (10/11, 11 and 11/12: N= 94). The material from Oslo, however, includes fewer shoes and stems from relatively limited areas in the 12th century town, in comparison to the Bergen and Trondheim assemblages that stem from many plots, so one cannot exclude that the available data on Oslo shoes are not completely representative for this town in the 12th century. Anyway, the numbers for the three 12th century towns are quite comparable and the share of shoes with embroideries is large.

In conclusion the Bergen material is not unique in a 12th century Norwegian context. And with the mere proportion of embroidered shoes in 12th century Norwegian urban communities in mind it seems unlikely that silk yarn and embroidery were as exclusive as previously thought. Other sources may point in the same direction.

The value of silk yarn as a commodity

With my estimate of the number of running metres of yarn in various embroidery patterns, information concerning the price for a pound of silk in 1282 as well as an estimate of the number of running metres of yarn/thread by (the weight of) one pound (*pund*) of silk, we can get an impression of the value of the silk

yarn needed for different categories of 12th century shoes, however, in late 13th century prices.

In King Erik Magnusson's regulation of trade and prices in Bergen from 1282 we, among other, hear about the price of silk thread and crafts people's wages. The regulation goes as follows (my translations into English): "Silk thread must be sold by the pound (*pund*) for 14 *øre* and according to this price even if less is sold".²⁴ The source goes on: "But as a monthly salary a medium good craftsperson (that works with wood and metal) can charge 6 weighted *øre*, but the best foreman 9 (12) weighted *øre*" (NM 1973, 178). The number 12 in a parenthesis represents a number given in an alternative text edition; in the following I will use the numbers in first text edition that is 6 and 9 for the respective crafts people.

When trying to estimate of the number of running metres of yarn/thread by 1 pound of silk, we cannot merely sample and weigh the preserved yarn; this would cause too much damage on the archaeological finds. So again an experiment as well as calculations based on modern materials and archaeological parallels is called for. As already mentioned the medieval yarn may have been at least 1.37 mm thick, it was not spun, and in well preserved embroideries the yarn was glossy.²⁵ Modern yarn qualities may have been treated in ways that have given them another own weight than the medieval counterparts, this is, however, a factor that we cannot control, so it is left out. The weight by the running metre of silk yarn in about the same thickness as the medieval yarn (1.4 mm) varies from c. 0.27 g per m (embroidery yarn of reeled silk, '*Ver a soire*') in the light end of the scale (my measures), to c. 1.0–1.4 g a metre in the heavy end. The latter represented by spun yarn of the trademark Himalaya.²⁶ Since the medieval yarn was unspun, and glossy, it was probably of a reeled and degummed quality.²⁷ This makes it likely that the weight should be closer to '*Ver a soire*' than to the spun 'Himalaya' yarn. A 10 looped fingerlooped braid found 14th century deposits

in London had a weight of 1.14 g by the metre. The braid was composed of 20 threads, on an average it was c. 3 mm wide (numbers reworked from Crowfoot *et al.* 1992, 138–140). I have made a five loop braid of ‘*Ver a soire*’ yarn, it was composed of 10 threads and was c. 4–6 mm wide. Had my ‘*Ver a soire*’ braid been composed of 20 threads it would have been c. 8–12 mm wide. According to this, as a very rough estimate, it appears that the thickness of the London silk thread was about a $\frac{1}{3}$ – $\frac{1}{4}$ of the ‘*Ver a soire*’. Multiplying the weight of the London braid by 3–4 and dividing by 20 we end up with 0.17–0.23 g/m for yarn in about the thickness of ‘*Ver a soire*’. For the London braid we must probably count in some weight loss on account of preservation conditions, still it seems likely that the weight of the embroidery yarn found on shoes should be in the light end of the scale that was based on modern yarn qualities. With this information at hand I will use 0.33 g as the estimated weight of a metre of medieval silk yarn with a thickness of about 1.4 mm.

If medieval silk yarn for embroideries such as those in Bergen weighed about 0.33 g per running metre, one could buy c. 1284 m of yarn for 14 *øre*, according to the 1282 regulation. This amount of money is equivalent to 840 penning. I consider this estimate conservative because the medieval yarn may well have been lighter and thus less expensive per metre.

With the estimates of the number of running metres of yarn in an embroidery, the number of running metres by the pound of silk yarn and the prices of the 1282 regulations, we can obtain an impression of the value of the silk in the 12th century shoes, however, in 1282 prices. I have compared the prices of the different value classes of shoes with the monthly wages of the two kinds of crafts people mentioned in the 1282 regulations. The calculations show that in 1282 prices a medium good craftsman could buy silk for between 108 and 540 *pairs* of shoes of the simplest category of embroidered shoes (category 2: 0.5–5.0 m of yarn per shoe) for a month’s wages. He could buy silk for about 24

pairs of the most elaborate kind of embroidery (category 6: 11 m of yarn per shoe). In comparison the best foreman could buy enough silk to decorate between 162 and 810 pairs of the simplest shoes and about 37 pairs of the most elaborate for a month's wages. In addition the craftspeople would have to pay the price of the shoe and for the embroidery-job we must assume. It would be good to know where these craftspeople belonged in the economic hierarchy, but it is beyond the scope of the present study to pursue this question.

Evaluation of the 13th prices for the 12th century shoes

If we project the 1282 prices directly on to the 12th century shoes, we are indeed left with the impression that silk yarn was not a very expensive commodity. However, such a direct projection is probably too hasty and needs to be balanced; the prices on silk and labor are based on normative price regulations and may thus reflect the 'ideal' price level not the real level by 1282. To what extent this makes the price too high or too low we cannot determine, still it's worth keeping in mind. More importantly the prices apply to a period some 150 years after the period we are dealing with here. I expect that trade connections were better established at the end of the 13th century than in the mid-12th, and silk thread/yarn may thus have been more expensive and harder to come by in the earlier period. The 12th century price level for wages, so to speak, may also have been another. On order to evaluate the relevance of the 1282 prices for the 12th century shoes I will return to the archaeological sources to see if embroideries on shoes were still popular by the end of the 13th century.

Data from Bergen has not been studied in enough detail for periods after c. 1170 however, the numbers from Trondheim and Oslo show that the proportion of embroidered shoes in relation to plain ones is at a peak from the last part of the 11th century and throughout the 12th. After the first quarter of the 13th century the

proportion of embroidered shoes decreases and after c. 1250 the occurrence is diminished to almost none (Tables 7.1 and 7.2). Embroideries on leather shoes were apparently no longer common, perhaps out of fashion, by the end of the 13th century. If prices were influenced by supply and demand relations this would have made the silk yarn less expensive by the end of the 13th century compared to earlier, and certainly balances the impression of inexpensive silk yarn. The silk yarn may thus have been more expensive and valuable for people in the 12th century, than the 1282 prices indicate.

The value of embroidered shoes for 12th century townspeople is also witnessed in other segments of the archaeological sources: leather waste signifying the reuse of embroidered shoes is thus common and shows that embroideries were used again and again. Two objects made of reused uppers of value classes 5 and 6 have been found in the culture layers of 12th century Bergen, they provide good examples that the embroideries were appreciated.²⁸ Again, however, some balancing is necessary to grasp the nuances offered in the archaeological sources; the two objects made out of embroidered uppers were probably for children; one was a hand-me-down shoe for a 6–7 year old child, professionally remade into a child's shoe from a grownup's shoe (Fig. 7.1). The second object was a 'homemade' sheath for a knife.²⁹ This may illustrate that silk embroideries were appreciated, but nevertheless considered less exclusive; fancy embroideries, albeit reused, were accessible even for children.

<i>Trondheim, Bibliotekstomten, Phase and dates</i>	<i>Shoe uppers total</i>	<i>Embroidery total</i>	<i>Embroidery as % of all uppers</i>
12 (1600s)	90		0
11 (16th century)	3		0
10 (1375–1500)	15		0
9 (1275–1325)	54	2	3.7
8 (1225–1275)	199	6	3.0
7 (1175–1225)	163	44	26.9 %
6 (1150–1175)	181	61	33.7 %
5 (1100–1150)	188	69	36.7 %
4 (1050–1100)	285	66	23.2 %
3 (1025–1050)	287	20	6.9 %
2 (–1025)	272	7	2.6 %
1 (900s)	24	1	4.1 %

Table 7.1. Trondheim the Library site. Uppers with embroidery as a percentage of all uppers from the 10th–17th century. Numbers according to Marstein 1989, att. 1 and 2; dates according to Christophersen and Nordeide 1994, figs 23 and 24.

<i>Oslo, Mindets tomt og Søndre felt, Phase and dates</i>	<i>Shoe uppers total</i>	<i>Embroidery total</i>	<i>Embroidery as % of all uppers</i>
5–7 (1250–1350)	165	0	0.0 %
8 (1200–1250)	52	2	3.8 %
9/10 (1150–1225)	61	17	27.8 %
11 (1125–1175)	67	27	40.2 %
11/12 (1100–1175)	21	9	42.8 %
12 (1100–1150)	50	27	40.3 %
13 (1050–1100)	42	19	45.2 %
13/14 (1025–1100)	27	13	48.1 %
14 (1025–1075)	12	3	25 %

Table 7.2. Oslo, the Mindets Tomt and Søndre Felt sites. Uppers with embroidery as a percentage of all uppers from the 11th–14th century. Numbers and dates modified from Schia 1987, 53, fig. 65.

Altogether, the evaluation of the 1282 prices against the archaeological sources leaves the impression that silk yarn may have been more expensive and precious for people in the 12th

century, than in the end of the 13th century. However, the high proportions of shoes with silk embroideries in 12th century Bergen, Trondheim and Oslo strongly indicate that silk was not reserved for an exclusive group of people and that silk yarn cannot have been an exceptionally expensive commodity in 12th century Norway.

Leather shoes with embroideries in northern Europe

Were leather shoes with silk embroideries a Norwegian phenomenon in the late 11th to the early 13th centuries? The body of published shoes from contemporary northern Europe is not voluminous and the detailed publications and catalogues needed for a real assessment of the geographical and chronological distribution of silk embroidered shoes are not available or not readily accessible. However, a survey of publications of major archaeological sites around the Baltic and the North Sea, shows that embroidered shoes have been found in many places: in Lund in medieval Denmark embroidered shoes are found that date broadly to the 11th–13th centuries.³⁰ They are of pattern A1, (cf. [Fig. 7.2](#)); the raw material of the embroidery yarn is not mentioned. In Viborg, likewise in medieval Denmark, four shoes with embroideries are published, they date to before c. 1200³¹ and are of pattern A1, but the yarn is not preserved. In Schleswig leather shoes with embroideries are also found; they date to the 11th–12th centuries.³² In medieval Sweden, in today's Gl. Lödöse, shoes with embroidery in silk yarn are also found, dated to the 12th century (pattern B1, D1).³³ In assemblages of shoes from England, London sites have produced 30 embroidered uppers. According to the descriptions some had red and green silk thread preserved. They date from the end of the 11th to about the end of the 12th century³⁴ In York, 25 embroidered shoes date to the late 11th–early 13th centuries.³⁵ Some had silk yarn preserved.³⁶ In Beverly embroidered shoes are also registered.³⁷ Other English towns that have yielded embroidered shoes are Durham, Lincoln,

Coventry, Oxford, Worcester, Gloucester and Winchester. In Scotland, Perth has produced embroidered shoes.³⁸ In Poland, shoes with embroideries in golden and reddish silk thread have been found in the town of Opole. They date to the 10th–12th centuries. In Gdansk embroidered shoes are found that date to between 1020 and 1160.³⁹ Other examples dating to the 12th–14th centuries come from Worclaw, where embroidery yarn has not been preserved,⁴⁰ and Szczecin dating from the second half of the 10th century to the first half of the 13th century. Here the preserved yarn was, however, wool.⁴¹ In Russia, examples are known from Novgorod, including one specimen dated to 1070–1080 (the thread is not preserved)⁴² and Pskov, where uppers with silk embroideries have been recorded, but no dates are given.⁴³

This short survey shows that embroidery on leather shoes was not an isolated Norwegian phenomenon in the early Middle Ages. In most places the embroidery yarn has not been preserved, but in assemblages from both England, Poland and Russia preserved yarn has been identified as silk, in one place wool embroidery yarn is also identified, which goes to show that other raw materials were also in use. The dates from the north European sites, where such are available, are in accordance with those provided by the Norwegian studies.

When were embroideries on leather shoes – and silk embroidery yarn – introduced in the north?

How far back can we trace the use of embroidery on shoes in the north through the archaeological materials? Embroidered shoes were not a new phenomenon in Norway in the mid-12th century; this is seen not only by the Trondheim and Oslo shoe assemblages where embroideries are documented, albeit in small quantities already in the earlier part of the 11th century. At Trondheim one shoe with a single stripe of stitches sown directly onto the leather without previous scorching has been assigned to the 10th century

and may indicate any even earlier start (Tables 7.1 and 7.2). Also at Borgund, a non-rural site in the Møre and Romsdal county in western Norway, a single stripe of embroidery from toe to instep are found on several shoes that typologically date to the 11th century and earlier.⁴⁴ The oldest documented occurrence in Norway, however, goes back into the 9th century. A leather shoe with a single stripe of embroidery from toe to instep was thus found in the high status Oseberg burial in the Vestfold County in eastern Norway.⁴⁵ The burial mound is dated by dendrochronology to AD 834.⁴⁶ Unfortunately the embroidery yarn was not preserved on either the early Trondheim-shoe, or at Borgund or Oseberg, so we cannot establish if the embroideries were actually carried out in silk yarn. In the Oseberg grave fragments of silk textiles had survived⁴⁷ and perhaps this is an indication that embroidery yarn ought to have been preserved, had it been of silk? On the other hand local conservation conditions in different sections of the grave may have determined what was preserved and what was not. Still, the conclusion remains that that embroideries on leather shoes go back to at least the 9th century in Norway, however it cannot be established if the use of silk embroidery yarn on shoes goes this far back in time.

In a north European perspective shoes with traces of embroideries, that is a (non-functional) seam from toe to instep, have been found in Staraja Ladoga in Russia. The finds are widely dated to the 7th–9th centuries. Another early find stems from the rural settlement Elisenhof in Ejdersted (western part of North Schleswig, Germany) where shoes with a decorative seam that runs from toe to instep were found. The shoes are dated broadly to the second half of the 8th century.⁴⁸ In Haithabu from where a large assemblage of shoes has been studied, decorative seams on the upper have been registered on 22 shoes. A close date of the shoes is not given, however activity in Haithabu is dated broadly from the mid-8th to the mid-11th centuries.⁴⁹ Embroidery yarn was not preserved in the 7th–early 11th century shoes mentioned

here. With this information it may seem that the wearer of the Oseberg shoes shared a taste for decorative seams/embroideries on leather shoes, and followed a fashion or tradition for footwear that was already long established elsewhere in the Viking world. However since embroidery yarn has not been preserved in any of the shoes, we cannot establish whether, or to what extent, silk yarn was in use for embroideries on leather shoes this early.

Judged by the Norwegian urban shoe assemblages, it may be considered well documented that embroideries were becoming increasingly popular during the 11th century and in the latter part of this century the share of embroidered shoes versus undecorated shoes was increasing towards a peak that lasted throughout the first two decades of the 13th century. It also seems well substantiated through both the Oslo and Trondheim shoe assemblages that, by the beginning of the 12th century, silk was widely used. The archaeological sources can, however, not at the present witness just how far back in time the wide use of silk embroidery yarn should be seen. Still we shall not leave the problem just yet!

According to the early 13th century historian Snorre Sturlason people took to new habits regarding dress and footwear during the reign of Norwegian king Olaf Kyrre (1066–1093). Among other things, the use of high shoes with silk seams became popular.⁵⁰ The blooming of the embroidery fashion towards the last part of the 11th century actually corresponds very well with the insight offered by Snorre, and it is not far-fetched to suggest that the wide use of silk embroidery yarn dates back at least into the last part of the 11th century. Snorre seems to associate the new practices with life in the towns that grew during Olav's reign.⁵¹ Unfortunately there are not archaeological sources from medieval rural sites in Norway to mirror the urban situation, so we cannot establish whether leather shoes with embroideries were strictly an 'urban' phenomenon in Norway in the early Middle Age or if the fashion found an even wider specter of followers.

The large shares of embroidered shoes in the Norwegian towns and the 12th century distribution of shoes, within the broad variety of patterns witnessed in Bergen, suggest that people with relatively low as well as high economic capacity now were able to acquire embroidered shoes.⁵² This must have been made possible by rather low prices on silk yarn. The silk in itself was thus no longer a powerful class signifier. However, shoes in elaborate patterns that demanded much silk yarn, as well as knowledge of how to compose up-to-date designs, would in all likelihood have signalled that the wearer belonged to a group of people with economic as well as cultural capital, so to speak. The most elaborate and resource demanding shoes were probably a sign of wealth. We find examples of such shoes in the upper decorated with a classic poem of Vergil, written in runes, but with a Latin text.⁵³ This shoe dates to the end of the 12th century and is from Bergen (Fig. 7.5). Having said this, wealth is of course a relative phenomenon; one must bear in mind that the shoes studied here stem from 'the town-area' of the Norwegian towns. They probably reflect economic capacity of 'townspeople' in a broad sense, as opposed to the royal or ecclesiastic elite; thus when the Danish archbishop Absalon was buried, he died in 1201, he wore leather sandals that seem to have been decorated with embroideries in gold thread on a silk fabric.⁵⁴ Now that was real wealth!



Fig. 7.5. Leather shoe with stitch holes/traces of embroidery. The shoe has a runic inscription in Latin quoting the Roman poet Vergil: 'Omnia uincit Amor et.' (Larsen 1997). It dates to the last quarter of the 12th century. Acc.no. BRM 0/52927. Photo: Svein Skare © University Museum of Bergen.

Silk Yarn as an Affordable Commodity

According to David Jacoby silk consumption was already widely spread by the 8th century in urban societies of the Muslim world. During the 11th century consumption beyond the social elite also expanded in Byzantium and the Christian west. David finds that, as a result of the demand for silk products from a broader specter of consumers, a range of lower grade silk and half silk products were made in the Mediterranean area. As an example of a low grade product he mentions floss silk thread, that is thread made of short- or waste fibres prepared from 'greige' – silk filament still covered in sericim – from the outside of a silkworm's cocoon and used for embroidery. Such has been identified in the Red Sea area, where it was sown onto silk and linen cloth.⁵⁵ Yarn as a low grade/by-product is still known today; in present day India, some silk yarn products are made of surplus fibres, leftover from the production of cloth for saris.⁵⁶

The fact that the medieval yarn was unspun and shiny suggests that it was not made of greige or waste fibres, because these fibres are not shiny and would usually require spinning.⁵⁷ Also the bulk character of yarn consumption may indicate that the embroidery yarn we are dealing here was an important commodity, not a small scale by-product; A rough estimate of the minimum amount of yarn required to satisfy the need of 12th century townspeople in Bergen can be made and this may illustrate the bulk character of the silk yarn as a commodity.

Some 101 embroidered shoes in different patterns were found in a town yard 'plot 6/D' located by the waterfront in mid-12th century Bergen (at the Bryggen Site). Counting the number of cm stripes of embroidery used in the 101 shoes, the numbers add up to 405 m, and with 0.33 g as the estimated weight of a running metre of yarn, this is equivalent to 135 g yarn. 250 m² of the town yard was excavated, giving us an average of 0,54 g of silk yarn/m². However, based on the average size of contemporary plots in

this part of town the plot 6/D may have covered some 460 m². Thus had the whole plot been excavated one would, all things being equal, have found shoes that had demanded the use of 248 g of silk yarn. This plot may serve as a representative example of a town plot on the harbour front in Bergen between the 1120s and c. 1170. Based on a reconstruction of plots in 12th century Bergen,⁵⁸ one can assume that at least 37 plots comparable to plot 6/D were occupied with settlement along the waterfronts in the northern and middle parts of the town-area. In addition areas further inland along the Fløyfjellet Hill and the southern part of the town-area were settled. There was also settlement attached to the town's royal and ecclesiastic institutions beyond the central townarea.⁵⁹ It is however hard to give any qualified estimate on the scale of consumption in the latter areas and it will suffice to consider the 37 properties of the harbor area.

If the inhabitants of the 37 properties in the harbour area consumed as much yarn as those of plot 6/D (37×248 g), c. 9.2 kg of silk yarn must have been bought over a c. 50 year period. This estimate is needless to say a minimum, taking a point of outset in the fraction of shoe uppers that have been found archaeologically, not in the number of shoes that were actually consumed during the 50 year period. Furthermore, based as it is, on many 'levels' of calculations, the estimate is certainly somewhat crude. Still, we get the impression that the market in Bergen must have been significant. We have seen that Bergen was not special in a Norwegian context as goes the share of embroidered shoes among townspeople. With a view to the, admittedly also very crude, survey of embroidered shoes found at a number of major archeological urban sites across northern Europe, it is not farfetched to assume that the Norwegian urban consumption pattern must have had their parallels in towns of comparable size all over northern Europe. The market must thus have been quite large, and perhaps the yarn was not a small scale by-product, but a large scale produced silk commodity?

It would be interesting to know where silk embroidery yarn was produced and how it ended up in Norway and other northern European towns in the late 11th–early 13th centuries. There is, to my knowledge, little mention of silk yarn as a commodity in contemporary sources, the 13th century Norwegian regulation thus only gives the prices for silk commodities and does not reveal provenance or trading routes. Perhaps new natural scientific methods will help us in answering the question of provenance in detail the future. A qualified guess is that the silk yarn found in the shoe-embroideries may be from the Mediterranean area.⁶⁰ It may well be that the red and yellow yarn was a lower grade silk product aimed at a broader specter of people in the social hierarchy, as described by Jacoby. It remains to see what kind of dye we have behind the red and possibly also yellow colour of the preserved yarn. Might the red be a result of an imitation of exclusive red dyes, or was an expensive agent used? And could the yellow be an imitation of gold.⁶¹ Were the dyes local, and should we then calculate the price of dyes into the price of silk yarn? Or were the yarn already dyed upon arrival in the centres of consumption? The latter seems to be the most realistic, judged by tests for dye made on London textiles. In the London assemblage of textiles, silks showed a slightly different range of dyes and more dyes ended up as ‘unidentified’ in the tests, compared to the wool fabrics. This has been explained as reflecting a more exotic origin of the silks.⁶² This in turn would suggest that the dyes were applied to the silk products before they reached London.

The introduction of the broader use of silk yarn witnessed in the Norwegian archaeological collections, and probably paralleled in other north European medieval towns (but still to be found in the culture layers, or re-found in the storerooms?), may both be the reason for, and the outcome of, the increased production and availability of lower grade silk products. The large amount of embroidered shoes and thus yarn required for the north European ‘urbanites’ to dress up properly has not formerly been appreciated.

However the study of the Norwegian assemblages has shown that silk yarn in the end of the 11th century, throughout the 12th and some decades into the 13th century silk was a luxury for everyone, so to speak. The study has thus provided new insight into the question of silk products for a wider range of people in a social as well as in a geographical aspect.

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8. The Flax and Linen of Medieval Novgorod

Heidi M. Sherman

From the 12th to the late 15th centuries, Novgorod – or *Lord Novgorod the Great*, as it was officially termed prior to its violent annexation by Moscow in 1478 – was one of the largest states in medieval Europe, controlling lands stretching from the head of the Gulf of Finland to the White Sea and the northern Ural Mountains. The principal source of this state's famous wealth and power was its trade, both to the south and south-east with the other Rus lands, and to the west, with northern Europe. Novgorod's trade is well known to students of the medieval era, especially that in furs, its major export commodity to the west, particularly from the late 12th century onwards when the city became the major eastern *kontor* (trade office) for the Hanseatic League, which handled the export of Novgorodian goods to the west. To date, its fur trade is the best-studied area of the medieval economy of Novgorod, in part due to the richness of textual and archaeological evidence.¹ It is also the case that the high-value luxury trade in skins draws more fascination than the handling of prosaic raw materials such as honey, wax, tar and pitch, among others, all of which also played considerable roles in the state's near- and far-distance exchange history. Among these, bast fibres (flax, hemp, nettle) and their end products have received little concerted attention thus far from archaeologists and historians alike.² This paper will focus on flax, and my aims are threefold. First, to provide an overview of the primary source material; second, to reassess Boris Kolchin's theory for the processing of fibre within the town versus the

countryside; and third, to examine in some detail the flax and linen trade of Novgorod.

Flax and its uses

The type of flax grown in northern Europe, Russia included, is the long-stemmed cultivar *Linum usitatissimum*. This particular breed of flax is the best for acquiring fibres because, in optimal conditions, it can reach 100–145 cm in height, with the stalk containing approximately 30 bundles of fibres running from root to top. North-western Russia (55–60° latitude) offers ideal conditions for the cultivation of long-stemmed flax, the growing of which benefits from long humid days (17–18 hours) during the first two months of summer and podzol-clayey soils. Long-stemmed flax has been one of the main agricultural pre-occupations in the north-west and north-central Russian administrative regions (*oblasts*) of Pskov, Novgorod, Leningrad (St Petersburg), Vologda, Iaroslavl, Moscow, and Smolensk for centuries.³ It is the Pskov, Leningrad, and Novgorod regions that make up the core of Russia's extensive flax belt.

Flax and hemp were sown widely throughout Russia for both their commercial value and usefulness in everyday life. Flax and hemp are ideal materials for sail-cloth, canvas, and netting as vegetal fibre cloth increases its tensility by 20% when wet. Into the early 20th century, Russia supplied much of northern Europe's industrial-grade flax and hemp for rigging, sails, nets and rope. For example, during the years 1786–1799, England imported more than 75% of its flax and almost 100% of its hemp from Russia,⁴ and by the early 19th century flax accounted for more than half the value of Russia's exports,⁵ even exceeding the value of its grain exports. Yet more significant was a sizeable domestic consumption that cut across class distinctions. Prior to the widespread availability of cotton in Russia in the 19th century, all clothing was manufactured from either vegetal (flax, hemp, nettle) or animal (sheep, goat) fibre. The rougher texture of wool made it

an unpopular choice for underclothing, sheets, and other items that lay against the skin. Vegetal fibre cloth, particularly linen, is not only soft, but also warms in cold weather as underclothing and breathes to keep one cool in the summer. Beyond undergarments and clothing, linen was used for all manner of household items: bed sheets, table linens, towels, and other items such as icon panels. Lesser quality line flax and tow were used for sackcloth, and netting and ropes for local fishing. Although long-stemmed flax did not produce large quantities of linseed, the oil was consumed when available or used for paint and lamp oil, and the seed husks and flax chaff for cattle fodder.

Primary sources for flax and linen

The primary sources for Novgorodian flax and linen date mainly from the 13th through the later 15th centuries. The written accounts are particularly fragmentary and laconic. These include nine commercial treaties made between the citizens of Novgorod and its appointed prince dating between the years 1266 and 1471, the *Pistsovye Knigi* or land surveys of the Novgorod hinterland in the late 15th and 16th centuries, the 15th-century *Kämmereibuch der Stadt Reval*, or the Chamber Book, from the Hanseatic post at Reval, and one birch bark letter. This may seem a rich collection of documents, but their data is brief and anecdotal, lending themselves to contradictory interpretation.⁶

Vegetal fibre production is well attested in the archaeological layers of Novgorod, the preservation of which is nearly unmatched by any other medieval European urban site. This is due in large part to an anaerobic environment that in effect acts as a hermetically sealed envelope for the town's layers dating from the 10th through the early 16th centuries. And for this reason, archaeologists routinely unearth organic materials, including objects of wood, birch bark, and leather. Additionally, this wooden city was vulnerable to fire, which would generally consume all but the house foundations. New houses were most often built directly

atop the old foundations. In this way, the elevation of Novgorod rose with each generation. Intensive excavations conducted from 1932 to 2002 have unearthed 29 building layers containing more than 150,000 items, and this tally does not include the massive volume of pottery and animal bones.⁷ And this represents only a small fraction of Novgorod's medieval material wealth since it is estimated that to date only 3% of the medieval town has been unearthed.

The archaeological evidence for the working of flax into textiles stems from two excavations conducted at the medieval neighbourhoods of Nerevsky (1951–1962), where archaeologists studied more than 9000 m² with cultural layers more than 8 m thick in places, and at Troitsky (1973 to the present), where more than 6000 m² of territory has been examined thus far with cultural layers 5 m thick. From these digs, the material evidence for vegetal fibre-working consists of the following groups: one birch bark letter,⁸ macrofossil remains, a few textile fragments, tools used to clean the flax straw from the fibre, and, finally, instruments for spinning and weaving. Spinning and weaving tools will not be discussed in detail since they were used also for animal fibre cloth preparation.

Macrofossil finds of flax seeds, seed capsules, and fibre straw are a rare occurrence. One exceptional example is a deposit retrieved at Troitsky XI and analysed by archaeobotanists Michael Monk and Penny Johnston. The sample yielded a concentration of flax seeds and seed-capsules, which suggests this was a storage pit for seeds intended for the procuring of linseed oil.⁹ This would seem an uncommon occurrence in Novgorod since Russia's north-western lands grew fibre flax, which is harvested before the seeds have a chance to ripen.

The number of vegetal fibre textiles identified from the Novgorod digs is also small. Of the more than 3000 textile fragments unearthed from the Nerevsky excavations (1951–1962), with 422 textile fragments analysed, the overwhelming majority

are wool, while only 10 samples could be identified as made from vegetal fibre.¹⁰ A similar disproportion of wool to vegetal textiles occurs for the Troitsky excavations, with three vegetal fibre samples from the 390 (mostly wool) samples put to analysis.¹¹ The proportionately small number of linen fragments from this sample may not be an accurate indicator for the low frequency of vegetal fibre cloth manufacture in Novgorod because bast fibres are vigorously worked and then broken down (beetled, broken, scutched, and hackled, or vigorously combed) before they are woven into cloth – much more so than animal fibres – which contributes to their lower survival rate in archaeological contexts. Moreover, cellulosic fibres do not generally survive in anaerobic contexts, explaining further the absence of vegetal fibre textiles in the cultural layers of medieval Novgorod.

The largest primary source group for vegetal fibres in Novgorod consists of the tools used to remove the fibres from the stalks, a labour-intensive procedure that has two primary stages: the breaking and removal of the stem's bark and the straightening of the fibres for spinning into thread. Prior to industrialisation, these processes were accomplished by means of simple but nevertheless specialised wooden implements. Many of these are represented in the Novgorod excavations: wooden pounders or 'beetles' (*pral'niki*), three threshing sticks (*trepal'naia lapi*) to break the stems after they have dried from the retting process, remnants of a few flax breakers, and 97 scutching blades (*trepali*), most of which are knife shaped.¹² These tools were used to break and clean the straw from the fibres. The next stage involved bringing the tangled fibres into line by drawing them through two or three sets of hackles (*chesali*), which consisted of narrowly spaced iron nails embedded in a wooden platform. As of 2002, archaeologists at Novgorod had identified 1024 hackles.

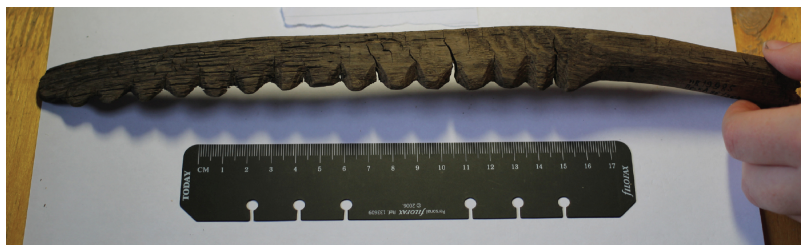


Fig. 8.1. 14th century tooth-blade from Novgorod. Photograph by Natasha Bruns and Marin Kniskern

Was flax fibre processed within the city?

The material evidence for flax and linen in Novgorod demonstrates their significance to the town's economy, but errors in interpreting the evidence have led to unfounded conclusions. One such misconception is that developed by Boris Kolchin, who believed that flax and hemp were commonly broken and then cleaned within the city instead of the countryside. This theory is grounded in his identification of wooden tools used for vegetal fibre processing, the largest category of which are flax hackles (Fig. 8.1). These are wooden knives with a toothed blade, averaging a total length of 45–55 cm, with the blade handle 12–15 cm and the blade making up the tool's length. The blades have an average of 35–50 notches, which are often pitched in the direction of the blade handle. The uniformity of these items is striking, especially considering they occur over a long chronological period of about 300 years from the 12th through the 15th centuries. A few toothblades were found in every household unearthed in the Nerevsky excavations.¹³

The form of the tooth-blades raises doubts regarding their interpretation as hackles. Ethnographic hackles tend to have long iron spikes or teeth of at least, and often exceeding, 10 cm in order for the flax to catch and hold as it is pulled through the device, an action that both removes the remaining straw and straightens the fibres. The teeth of the Novgorodian hackles are all shallow cuts of 9–10 mm, which would allow the hackle to only skim, but certainly not penetrate, even a small bundle of fibres. Moreover, these tooth-blades are the only fibre-working tools found in the Novgorod excavations that bear no similarities to ethnographic fibre tools for the 19th and early 20th centuries. Kolchin acknowledges problems with the material:

If compared with other spinning tools, the amount of mallets, threshing sticks, and scutches was small. It may seem that flax and hemp processing was an industry of few households which marketed

the raw materials for spinning. However, every household practiced spinning and this explains why flax hackles and spindles with whorls were found in nearly all the houses.¹⁴

Scutching and hackling generally occurred in the same location and in quick succession because scutched fibres are best hackled quickly to avoid knots and tangles, which render the fibre unusable to the spinner. Even if, as I suspect, the tooth-blades were not hackles per se, they may have been used to smooth the fibre immediately before spinning. This interpretation better explains why tooth-blades are found in proximity to drop-spindles.

Where, then, was flax broken, scutched, and hackled? The archaeological evidence substantiates some fibre processing within the medieval town, but certainly not enough to meet demand. And Novgorod was a great capital of tens of thousands throughout the medieval era. For answers, we must look to a series of land registers, the *Pistovye Knigi*, from the 1480s. When Moscow forcibly annexed the vast Novgorod lands in 1478, it sent clerks to the five outlying districts to assess what it could tax – and then imposed this direct taxation on its new peasant tenant farmers. In these books, we find hundreds of entries for a kind of ‘flax tax,’ paid in various forms: dried flax bundles, seed for oil, flax roving, thread, and textiles of varying quality. The records show that flax was grown on almost every peasant farmstead in the Derevskaia (35,700 km²) and Vodskaia (90,000 km²) provinces.¹⁵ These land holdings were owned by the boyars, whose agents collected the tax and brought it to the city. In one case, we see an entire flax-to-linen processing village, owned by Marfa Boretskaia, where the fibre was first dressed, then spun, and finally woven, all on a single site.¹⁶

Although these sources fall at the very end of the medieval era, they suggest a system that is already well developed and likely based on a long-standing one: the peasants grew and processed the flax, which was collected by landowners’ agents and brought to the city. What, then, did the boyars do with their flax? It is very

certain that most of it was consumed by the urban residents of Novgorod itself, who numbered between 25,000 and 50,000 in the mid-fifteenth century. The big question is: how significant was Novgorod's flax and linen export trade?

The Flax Trade

For over a century, many historians have operated under the assumption that Novgorod exported much of its flax and linen to the west through the Hanseatic League during the 13th through the 15th centuries. We can trace this line of certainty back to A. Nikitski, who wrote "The medieval sources provide virtually no direct evidence for Novgorod's export trade in flax and hemp, but even so indirect evidence permits us to argue for the quite considerable exports of these items from Novgorod". For bare threads of evidence, Nikitskii cited two references in the Hanseatic sources: one dated to 1407 that mentions the existence of a flax warehouse in Novgorod's Hanseatic kontor, and the second from Reval *sub anno* 1424 describing a growing trade in Novgorod in waste and seeds from flax processing.¹⁷

In my opinion, these two sources do not serve Nikitskii's thesis. Could the warehouse not have been used to store linen canvas that we know from trade treaties was exported to Novgorod by the Hansa? Likewise, several passages in the *Nowgoroder Schra* or the code of regulations adapted by and for the Hanseatic traders in Novgorod, in versions that date to the 14th and 15th centuries, mention *lînwant* (MLG) – but this is linen canvas imported *into* Novgorod, not exported from Novgorod to the West. A. Khoroshkevich has brought to light the Hansa's sizeable import trade in wool and linen cloth to Novgorod. In 1410 alone, the Hansa merchants had 200 *terling*, or about 80,000 m of cloth, at hand, which represents only part of that year's cloth imports to Novgorod. To appreciate the magnitude of these imports, we can compare to Gdansk, the major port for German Prussia and its Polish hinterland which, in the second half of the 15th century,

imported much less than a total of 200 *terling* per annum. It would appear these imports met a demand for finer cloth that Novgorod's then undeveloped textile industry could not itself satisfy.¹⁸

Instead of trading west, some of Novgorod's flax and linen flowed to markets in the other Rus lands. We have nine treaties made between the citizens of Novgorod and its appointed prince dating between the years 1266 and 1471, in which the prince swears that he will protect merchants visiting Novgorod and Novgorodian merchants visiting his patrimonial principality of Suzdal and, later, Moscow, and among the merchants are those specialising in the trade of 'hops and linen'. This is the extent of the protected commodities list, so it is clear that for two centuries hops and linen were foremost among Novgorod's exports to other areas of the Rus lands.¹⁹

Thus, a review of both the archaeological and the documentary evidence tends to cast doubt upon any extensive export of flax or linen out of Novgorod to the west in the 13th and 14th centuries. German merchants did, however, export flax from other parts of north-eastern Europe. From sparse German records from the city of Riga, the metropolis of Livonia and the principal staging place for the Hansa trade with Rus, we can glean that tons of flax were exported out of that city already around 1300. But there is no source from German-ruled Livonia, whose towns participated very actively in diplomacy and trade with Novgorod, Pskov, Polotsk, and other northwestern Rus polities that states that any of that flax came out of the Rus lands. Invariably, only furs and wax are specified as trade goods coming *out of* Rus. The flax going west out of Riga in all likelihood was produced by Livonian, not Novgorodian, peasants.²⁰

It is only from the second half of the 15th century that Novgorod's flax export trade shifted westwards. Toll registers from Lübeck record increasingly large quantities of flax and hemp exported from Novgorod via Reval during the last quarter of the 15th century, with a marked increase in the 1490s.²¹ Meanwhile,

throughout the second half of the 15th century, Novgorod's fur trade experienced a decline, in large part due to increasing tensions with the Hanseatic League and, more significantly, Moscow's aggression towards Novgorod. When Ivan III annexed the Novgorod lands in 1478, he replaced Novgorodian landowners with those from Moscow and seized title to many of the remaining peasant holdings in the north. Additionally, the new landlords of Novgorod's fur-rich territories gradually ceased accepting rents in fur, thenceforward requiring rents in cash, grain, and other agricultural goods such as flax and hemp. The *Pitsovye knigi* (land registers) for the 1480s give evidence for this transition in the type of rents-in-kind demanded, recording sizeable quantities of various flax goods (and hemp to a lesser extent) collected.²²

The next century witnessed a dramatic growth in Russia's (Muscovy's) flax and hemp exports to north-western Europe. In the 15th century, Poland and Livonia supplied England with most of its fibre, but by the mid-16th century Muscovy commenced a long and highly lucrative commercial relationship with the newly-formed English Muscovy Company, which for more than two centuries would manage much of Russian export flax trade. It is important to mention here that most of the Russian fibres produced for export came from north-western Russia, or the area covered by the lands of Pskov and Novgorod. A number of English explorers and emissaries to Muscovy in the 16th century commented on the superior quality of Novgorod's flax and linens. Richard Chancellor, for example, exclaimed that Novgorod "excels all the rest in the commodities of flax and hemp".²³ And George Killingworth, an agent of the Muscovy Company, wrote to London in 1555, "I doe intend to goe to Nouogrode and to Plesco [Pskov], whence all the great number of the best tow flaxe, cometh".²⁴ And, in the 1590s, the English diplomat Sir Jerome Horsey would observe that 'white Novgorod linen' would fetch a price twice that of linen sold elsewhere.²⁵ And the Hanseatic towns continued their trading relations with Novgorod, albeit in competition with

other foreign merchants. The 7th edition of the *Novgoroder Schra*, which dates to 1603, mentions *flax* along with tallow and hemp as *export items* out of Novgorod (VII, III, 18).²⁶ Thus begins a several-century era of sizeable Russian flax exports, during which the bulk of this product was sourced from the Novgorodian and Pskov regions.²⁷

Conclusion

This brief article's aim is to create a commodity history for flax that, like so many of the bulk trade goods of medieval Russia, has received little concerted attention from scholars. Russian peasant culture, as well as elites, used prodigious amounts of the fibre for myriad activities integral to daily life. Flax's heavy domestic consumption is evinced particularly well in the archaeological record of the medieval town. Its production for export, however, did not occur until the later part of the 15th century, when Novgorod's fur-producing network collapsed with Moscow's annexation of its fur-bearing lands. Henceforward, flax grew to become the centrepiece of the Novgorodian export economy.

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9. The Dual Crises of the Late-Medieval Florentine Cloth Industry, c. 1320–c. 1420

John Munro[†]

Introduction

During the 100-year period from about 1320 to about 1420, the Florentine woollen cloth industry underwent two closely connected crises.¹ Initially, the first crisis seemed to have had beneficial consequences: for this cloth industry soon became late medieval Italy's single most important export-oriented manufacturing industry, with large spill-over benefits for Italian commerce, banking, and finance. Indeed, by the third quarter of the 14th century, the Florentine cloth industry was rivalling the previously pre-eminent leaders – those in the southern Low Countries (Flanders and Brabant); and in Mediterranean markets of this era, Florentine woollens reigned supreme over all rivals. But the consequences of that first economic crisis, in the ensuing transformation of the Florentine cloth industry, contained the very seeds that spawned the second and far more major crisis, which led to the inexorable downfall of this once majestic industry, by the early 15th century.

The Florentine cloth industries and their markets: before and up to c. 1320

The Arte Della Lana

In the 13th and early 14th centuries Florence had two merchant-

dominated guilds devoted to the production and sale of wool-based textiles. The larger but much less important of the two was the *Arte della Lana*. Its constituent members were known as *lanaiuoli*: merchants (organised as family firms or small partnerships) who secured the raw materials, organised and contracted out the cloth production through variants of a putting-out system, and then arranged the marketing of the finished cloths.² Although some *lanaiuoli* of this earlier era evidently did manufacture a very few luxury-quality woollens, comparable to the Flemish, the importance of the *Arte della Lana* as a whole then rested on the production and marketing of a very wide variety of relatively cheap, coarse fabrics, most of which were not qualitatively different from those of other rival manufacturers, in either northern or southern Europe. That wide range of production included not only cheaper woollens, but even more so of much lighter and generally also much less expensive fabrics known to English historians as worsteds and hybrid serges (the latter, composed of worsted warps and woollen wefts).³ The most prominent type of these relatively coarser, lighter, and cheap textiles marketed in the Mediterranean basin during the 12th and 13th centuries were known generically as *sayes* or *says* produced in both northern and southern Europe, by both the worsted and serge branches of the cloth industry, though predominantly by the latter. In Italy itself, these lower-grade textiles were woven from a wide variety of local, regional wools, most of which were coarse and mediocre in quality, which came from Italy itself, North Africa, the Balearic Islands, and southern France, especially Provence. Such Italian cloths – chiefly from Tuscany and Lombardy – were marketed under a wide variety of names, without specific regional designations, as, for example: *saia*, *saia cotonata*, *stametto*, *trafilato*, *tritana*, *taccolino*, etc.

The Mediterranean markets for textiles, c. 1160–c. 1220

Nevertheless, the Italians accounted for only a small proportion of

the cheaper and lighter textiles sold in the far-flung Mediterranean markets. The predominant producers of those cloths were instead those located in northern Europe: especially north-western France, the southern Low Countries, and England. In the later 12th century, according to Hilmar Krueger's detailed analysis of the Genoese textile trade with Constantinople, Syria, and Egypt, the most important textiles in that Mediterranean commerce were Flemish and northern French says and serges (*saie*, *sargie*, *sagie*) followed by English *stanfortes* [stamforts] and similar cheap English textiles.⁴ In their respective articles on the Mediterranean trade in textiles from c. 1160 to c. 1220, both Roger Reynolds and Hektor Amman support Krueger's conclusions that these cheap, relatively light northern textiles then clearly predominated over almost all Italian-manufactured textiles.⁵

Lombard fustians, c. 1180 to c. 1320

According to Krueger, 'only the Lombard fustians formed an impressive item of export,' especially to Islamic and Byzantine markets.⁶ The importance of those fustians is certainly substantiated in a monograph that Maureen Mazzaoui published on this industry, which, in her view, was then the predominant leader in Italian textile-manufacturing, outranking the *Arte della Lana* and all other similar wool-based Italian industries, in both volume and values of sales.⁷ Fustians were also very light-weight, relatively cheap fabrics, but they were a non-wool hybrid composed of a linen (flax) warp yarn and a cotton weft yarn. The term fustian itself may be derived from the name of an important industrial suburb of Cairo, al-Fustat, which much earlier, during the 10th or 11th centuries, had become a very prominent producer of these textiles, by using local Egyptian flax for the linen warps and imported Syrian-Palestinian cotton for the weft yarns.

By the 13th century, the manufacture of these very light, comfortable and relatively inexpensive textiles had spread through the Mediterranean basin and even into Flanders in north-western

Europe; but, by then, Lombardy had become the undisputed leader in the European production of these linen-cotton fustians. Mazzaoui may have exaggerated in describing Lombard fustians as a ‘mass-production, mass-consumption’ industry, but its products were undoubtedly quite cheap, if more expensive than domestic home-spun. Consequently, these fustians were very popular amongst the lower middle classes in not just Lombardy but throughout much of Europe during the later 12th, 13th and early 14th centuries. An Italian variant of the fustians were fabrics known as *tiretaines*, which were composed of various mixtures of woollen, linen, and cotton fibres. Some of the market for Italian fustians and similar cheaper textiles – possibly their major commercial market in medieval Europe – came from aristocratic households: in supplying clothing for their servants.

Mediterranean textile markets, c. 1260–c. 1320

According to Patrick Chorley, in his subsequent analysis of Mediterranean cloth markets during the later 13th and early 14th centuries, the composition of that textile trade remained largely unchanged from the previous century, with again a clear predominance of sales, both by volume and by aggregate value, in the form of relatively cheap, coarse cloths, the majority of which came from north-western Europe (though Italian fustians are not included in his survey). Once more, they were chiefly lighter serges (hybrid woollen-worsted) and full worsteds; and more specifically, says, biffes, burels, rays, and stamforts. According to his estimates, this category of northern textiles had a value that was ‘typically about 40–60% of that of the *lowest* grade of [Franco-Flemish] coloured woollens.’ Citing two Iberian textile-price schedules from Spain and Portugal, in the early 1290s, he similarly found that the values of these northern lower-grade textiles were only 25–33% of those for such fine northern woollens.⁸

From early 14th-century Italian commercial accounts we find

specific evidence to substantiate Chorley's views: from the records of two major Florentine firms, the Peruzzi and Del Bene companies, which then specialised in sales of northern textiles in Italy.⁹ According to Richard Goldthwaite's analysis of the Peruzzi accounts for this era, this firm imported says from 'Ireland' (?), Caen (Normandy), and Hondschoote (Flanders), while also selling similar textiles from many Italian and other Mediterranean producers: for example, those in Genoa, Milan, Altopascio (Tuscany), Naples, the Romagna, Venice, Cyprus (Venetian-controlled) and Provence.¹⁰

Much more detailed evidence comes from cloth sales by the Del Bene firm for the five-year span of 1318–1323, which has been published in two separate studies, the first of which is again by Patrick Chorley. If we group the cloth prices in his study into two groups, by relative values, we find that the mean of prices for says, rays, and other cheaper cloths was less than half (46.71%) of the mean prices of the northern (chiefly Flemish) coloured woollens. In particular, prices for northern says (from Caen, in Normandy, and Ghistelles, in Flanders) were only 23.66% and 31.92%, respectively, of the mean value for the northern woollens.¹¹ The second and rather different study of cloth prices in the Del Bene accounts was undertaken by the late Hidetoshi Hoshino, the most prominent historian of the medieval Italian cloth industry.¹² If we again group his cloth price data for northern textiles in a similar fashion, we find that the mean value of the northern says and similar cheaper textiles was 59.54% of that for the northern dyed woollens, and thus somewhat higher than in Chorley's study. But Hoshino's data contains a much wider variety of textiles, and includes Hondschoote says, not given in Chorley's study. Prices for good quality Hondschoote says were 56.25% of the mean values of those northern woollens, while those for Ghistelles says and Caen says were, respectively, 24.34% and 62.20% of the mean prices for the northern woollens (which here exclude scarlets, because of their unusually high values).¹³

Relative values of Italian wool-based textiles, c. 1260–c. 1320

From similar sales registers of Florentine mercantile firms, Hoshino has also analysed the prices for a wide variety of wool-based cloths manufactured in Italian towns from c. 1260 to c. 1320s, once more finding that their coarse, relatively cheap fabrics accounted for the majority of the Florentine firms' textile sales. The prices for such textiles, especially including the *saia e tritana*, ranged from 23% to 43% of the market prices for standard luxury quality woollens from the northern towns.¹⁴

We may cite two similar and supporting documented comparisons for this same era. According to E. M. Carus-Wilson's analysis of a Venetian price list dated about 1265, 'almost without exception the Italian cloths are cheap; even the costliest do not approach in value those of Ypres, Douai, and Cambrai' [from Flanders].¹⁵ The other and final comparison comes from a study of early 14th-century cloth markets in the Provençal town of Grasse, which indicates that prices for Florentine-made cloths were only about a third of those for Ypres' woollens: a mean of 14s *royaux coronats* per *canna* vs. a mean of 40.5s per *canna* for Ypres' *rubeum* (red) cloths.¹⁶

The Arti di Calimala to c. 1320

Obviously far higher quality, indeed ultra-luxury quality, textiles also played a prominent role in Italian and other Mediterranean textile markets during this same period. In Florence that luxury trade was conducted by the other and commercially far more powerful guild known as the *Arti di Calimala*.¹⁷ Almost all of its trading goods were in the form of very fine and exceptionally costly woollens produced not in Italy itself but again in north-western Europe, especially in northern France and the southern Low Countries (Artois, Flanders, and Brabant). Virtually all of these costly woollens were woven from the finer English wools, whose quality was superior to those of any other known wools. They would remain unrivalled in fineness, quality, and price until

the wools from Spain, known as *merinos*, finally improved sufficiently in quality to challenge the English supremacy, though not before the later 16th century.¹⁸

The Italian merchants who acted as agents or buyers for the Florentine *Arti di Calimala* acquired most of these northern woollens at the Champagne Fairs, in north-eastern France, which served as the commercial hub or entrepôt for western Europe's international trade during the later 12th, 13th and early 14th centuries. These northern woollens were then transported from the Champagne Fairs down the Rhone Valley, and then, via Genoa, by sea to Italy, and to Florence in Tuscany in particular. Because of their provenance, these northern woollens were generically called *panni alla francesca*, while English wools were similarly if confusingly known as *lana francesca*.

In importing these northern woollens for resale either in Italy itself or abroad, in various Mediterranean markets, members of the *Arti di Calimala* devoted considerable labour, skill, and enterprise in finishing, dyeing, and dressing these textiles, according to current fashions and dictates of domestic and foreign markets.¹⁹ Their value-added revenues, from dyeing and finishing, ranged from 20%, 50%, or even 100% of the imported value of the unfinished woollens, especially in producing kermes-dyed *scarlatti* (scarlets), the most costly and luxurious of all European woollens, rivalling even the finer silks in value.²⁰

The first Florentine textile crisis: the 1320s

Warfare, population, and transaction costs in international trade, c. 1290 to c. 1330

The first and the most dramatic of the two crises in the Florentine cloth industry became fully manifest in its consequences by the 1320s and 1330s; but its fundamental origins lay in the wars that had plagued the entire Mediterranean and west European economies from the 1290s.²¹ In the eastern Mediterranean, they began in 1291 with Mamluk Egypt's conquest of Palestine,

eliminating the last remaining European (Crusader) commercial outposts in the Levant. That conquest immediately led to fratricidal wars between Genoa and Venice (1291–1299) for control over the alternative Black Sea trade; and that chaos in turn facilitated, from 1303, Ottoman Turkish conquests of major Byzantine-held territories in both Anatolia and the Balkans. Muslim-instigated warfare had begun almost simultaneously in the west with the Moroccan Merinid (or Marinid) invasion of Spain in 1291, in alliance with Muslim Granada. Not until October 1340 was this Muslim threat finally vanquished by a combined Portuguese and Castilian army at the Battle of Rio Salado (or Tarifa), though destructive strife with Granada continued for a decade, until the peace of 1350.

In Italy, far more disastrous warfare had begun even earlier, amongst Christian powers, with the famous Sicilian Vespers (1282–1302) against Angevin French rule. After a brief peace, Italy was wracked by the Guelf-Ghibelline wars (1313–1343), which in turn provoked various foreign invasions – by Germans, Hungarians, Angevins and Catalans – which continued until the 1380s. Meanwhile, from the mid-1290s, north-west Europe was also afflicted by war: the Anglo-Scottish, Anglo-French and Franco-Flemish wars, and related Flemish civil wars, which ended only with French intervention in August 1328.²²

The importance of these wars and their attendant features for European and, in particular, Florentine, cloth industries and trade was their role in dramatically increasing transportation and general transaction costs to an often prohibitive level in conducting long-distance trade in the cheaper textiles, especially between north-western Europe and the Mediterranean. Transaction costs are all those expenses that merchants and entrepreneurs incur in their role in transferring goods and services from producers to consumers. They include not only the most obvious – i.e., marketing and transportation costs – but also information and protection costs, especially in negotiating,

securing and enforcing commercial contracts.²³ Thus, in the European-Mediterranean trading zones transaction costs rose steeply during this long era of protracted warfare. Disruptions in traditional overland and maritime trading routes forced merchants to find safer but more distant routes, and the general breakdown of civil authority promoted increased brigandage, piracy, and state-supported corsair raids. Furthermore, disruption was also caused by increased commercial taxes and other aggressive fiscal policies, such as coinage debasement, to finance both warfare and defence, and from costly bans on trading with Muslim states and even Christian enemies (or costly trading licences).²⁴ Maritime commerce became radically more expensive from the 1330s, with the introduction of naval artillery, and with the ever rising costs of building and maintaining more and more heavily armed ships.²⁵ Finally, the steep fall in Europe's population, which had also begun in the early 14th century, well before the Black Death (1348), itself contributed prominently to the steady rise in transaction costs in international trade simply because the transactions sector, in having very high fixed costs, was subject to significant scale economies, so that smaller, contracted markets meant far higher unit costs in trade. Falling population, which the Black Death greatly accelerated, was due to a variety of factors, but certainly warfare, violence, and insecurity were among the more important in the pre-Plague era.²⁶ Continuous warfare, the Black Death, and subsequent declines in population also acted to increase transaction costs in yet another way: by increasing the per capita public debt burden for survivors, chiefly through rising taxation.

The decline of the Champagne Fairs, c. 1290–c. 1320

In international trade, the first direct and major casualty of warfare (and of the related rise in transaction costs along traditional transcontinental routes) was the destruction of the Champagne Fairs, on which the European and especially Italian-

dominated textile trades had depended so vitally in the later 12th and 13th centuries. Many historians have incorrectly stated that the decline and fall of these Fairs was primarily due to the Italians' establishment of a new direct sea route by the Mediterranean and the Atlantic to Bruges in Flanders and Southampton and London in England. But that maritime route was not fully established until the 1320s, long after the decline of the Fairs had become fully evident. Furthermore, even if the Italians' new maritime route to north-west Europe did generally prove to be less costly than trade along the now war-torn overland routes, it was certainly not a major advance in international trade. In fact, the transition from overland to these maritime routes was a retrograde measure, because the new sea route was at least five times longer than overland continental routes between Italian ports and the Low Countries, and it involved far, far fewer towns and regional markets than had the continental, Champagne-based routes. Furthermore, as just noted, warfare, corsair raids, and piracy were already imposing very substantial costs on this seaborne trade. Even in peaceful times shipping was often subjected to destructive ocean storms. With still primitive navigational techniques, above all the inability to calculate longitude, most Italian mariners were forced to keep within sight of the long Atlantic coastlines from the Straits of Morocco to northern France, Flanders, and England.²⁷ All these reasons thus explain why Venetian galleys sailed only intermittently during the later 14th and early 15th centuries.²⁸

The virtual disappearance of Mediterranean trade in the once-cheaper Northern textiles

Certainly the new maritime shipping routes – so intermittent in the 14th century, though more frequent in the 15th – offered no salvation for the ever more costly long-distance export trade in worsteds, serges and similar cheap and light textiles from north-western Europe to the Mediterranean basin, nor even for such trade in similar Italian textiles in this region.²⁹ There are two

related sets of evidence for the virtual disappearance of the trade in these northern textiles from the 1320s or early 1330s. In the abundant Italian commercial records for textile sales in the Mediterranean basin – in Spain, Sicily, Constantinople, Beirut, and Alexandria – no further references to these cheaper, lighter northern cloths can be found from these years (and not before the mid-15th century), except for a few, occasional ‘Irish says’, which may have been English worsteds.³⁰ Similar evidence can be found in the virtual disappearance of the various *sayetteries* and the related *draperies légères* (*draperies sèches*), in northern France, the southern Low Countries, and England, especially those that had specialised in producing relatively light and cheap worsted or semi-worsted fabrics for export to Mediterranean markets. England (East Anglia), to be sure, continued to produce worsteds for export to Germany and the Baltic for several more decades, until they too virtually disappeared by the 1380s, when various adverse conditions, especially a rise in piracy and Polish-German warfare, similarly increased transaction costs in this northern commerce.³¹

The plight of the Italian (Lombard) fustians industry in the 14th century

In 14th-century Italy, we find evidence for a similar relative decline of those cheaper-line export-oriented textile industries, though on a lesser scale than that experienced in north-west Europe. Obviously the demand for cheaper textiles did not disappear – demand that often came from aristocratic households, for their servants. Just as obviously, Italian producers of such textiles enjoyed a comparative advantage over their northern rivals in having lower transportation and transaction costs.

The most important example of such industrial malaise can be found in the once-renowned Lombard fustians industry. From the 1320s, it too experienced a slow but irredeemable decline, one that was also clearly related to warfare. For, as stressed earlier, no part of western Europe suffered more ravages from warfare than

did Italy, from 1313 until well into the 1380s. By this time such warfare had certainly contributed to the rise of the German competitors who would spell the final death knell for the Lombard industry. When the major South German towns – Ulm, Augsburg, Ravensburg, Constance, and Basel–found that wartime disruptions prevented them from securing their traditional supplies of Lombard fustians, they began converting their own domestic-oriented linen crafts into the manufacture of linen–cotton fustians, for export. By the 15th century, these South German towns had expanded what was initially just an import-substitution industry into western Europe’s most important producer of lighter, relatively inexpensive textiles.³²

The shift to luxury export-oriented cloth production: in north-western Europe and Italy

Among the wide range of European textile producers, the chief victims of the 14th century rise in transaction costs were north-western Europe’s *sayetteries* and related *draperies légères* industries that had depended on exports to Mediterranean markets. Because both northern and Mediterranean manufacturers had been producing very similar, undifferentiated textiles, all had to act as *price takers* in those markets. Consequently, the northern producers were unable to raise their prices to compensate for their far higher transportation and marketing costs in reaching these far-distant markets; unable to compete, and suffering chronic losses, most were forced to withdraw from this Mediterranean trade. Thus, by the 1330s the northern cloth producers found that their only long-term survival strategy was to shift their export-oriented cloth production more and more to far higher-priced luxury woollens, while retaining some lower-priced production for domestic markets. In doing so, they also transformed themselves from *price-takers* into *price-makers*: i.e., to engage in monopolistic competition by producing highly differentiated products without close substitutes. Now better able to set profit-producing market prices

they were thus also better able to absorb the rising transport and transaction costs, while also benefiting from a superior value: weight ratio than they had encountered in marketing the cheaper textiles.³³

The transformations of Florentine and other Italian textile production from the 1330s to the 1370s

The decline of the Arte Di Calimala and the rise of the Arte Della Lana in Florence from the 1320s

In 14th-century Italy, the industrial and commercial reorientation towards luxury woollens was much less pronounced than in north-western Europe. This is because, as stressed earlier, the Italian producers of, and merchants trading in, cheaper textiles had retained an important comparative advantage in transaction costs, especially in enjoying far larger domestic urban markets. Nevertheless, the transformations favouring both the production and trade of luxury textiles (later including silk), which was to become the most significant feature of late-medieval Italy's commercial-industrial economy, was clearly evident by the 1320s and 1330s. For Florence's own economy, that transformation meant the simultaneous and very dramatic changes in both of its renowned textile guilds: the virtual extinction of the *Arte di Calimala* and the rapid expansion of the now radically transformed *Arte della Lana*, previously the far less important guild.

At first glance, the plight of the *Arte di Calimala* might be attributed solely to the growth of the *Arte della Lana* as an import-substitution industry. From the 1320s the latter was devoting more and more of its output to woollens known *panni alla francesca*: those directly imitating Franco-Flemish woollens, also woven entirely from the finest English wools, and thus of the very type that the *Arte di Calimala* had previously imported from the north. Nevertheless, both the proximate and fundamental cause of the *Arte di Calimala*'s downfall was instead the precipitous decline of the Champagne Fairs, now virtually extinct, by the later 1320s,

with the final destruction of its traditional overland trading networks.³⁴

Thus one may contend that the chain of historical causation was the reverse: that these external factors caused the collapse of the *Arte di Calimala*, which in turn led to both the expansion and transformation of the *Arte della Lana*, in the manner just described. Such an interpretation might still justify the view of the *Arte della Lana* as an import-substitution industry (under such historical circumstances), but only if its raw materials were domestic in origin. The contrary was necessarily true, however, because all luxury-quality European woollens of this era had to be woven only from imported English wools, indeed from the very finest, for reasons explained earlier.³⁵ One might well assume, in terms of the oft-cited value:weight ratios, that importing semi-finished woollens from the southern Low Countries, though now by sea, would still have been cheaper and more cost-effective than importing English wools, especially since so much of the wool – about 35% by weight – was lost in the Italian cloth production processes.³⁶ Indeed, 15th century evidence indicates that shipping Cotswold wools from Southampton to Italy added 25% to total costs.³⁷

External economies justifying the costs of importing wool: papal taxation, loans, and bills of exchange

Nevertheless, Italian, and above all Florentine, merchants then enjoyed a very important – indeed crucial – external economy that fully justified the costs of shipping these wools from England to Italy: their role as papal tax collectors and merchant-bankers, thanks primarily to the very strong alliance between Florence's ruling Parte Guelfa and the Papacy from the 1260s. Furthermore, the Florentine merchant bankers provided loans to not only to the Papacy, but also to the English crown. Their latter lending role allowed the Florentines to gain control over the English wool-export trade, when, from 1275, Edward I (r. 1272–1307)

inaugurated the almost three century-long policy of levying taxes on such wool exports.³⁸ In essence, the Florentine merchant bankers made their loans conditional upon receiving collateral in the form of the wool tax revenues, and indeed control over the English wool customs.

The Italian financial instrument that, from this very era, provided the Florentine merchant-bankers with the effective link between collection of papal taxes in northern Europe and the Florentine export of English wools to Italy was the recently devised bill of exchange.³⁹ It was simply a principal-agent credit instrument with a dual function: to finance international trade and to remit payments abroad without having physically to ship precious metals, since payments were made only in the local currencies of those involved. The following example involves two principals in London, who made and received payment in pounds sterling: Italian merchant A, as the deliverer or remitter (*datore, remittante*); and fellow Italian merchant B as the taker or drawer (*prenditore, traente*). The other two were their agents in Florence who made and received payment in Florentine florins: merchant C, as the drawee or payer (*trattorio, pagatore*), and merchant D, as the payee (*beneficiario*). In this example, merchant A furnished or lent a sum of money to merchant B, for investment in the latter's wool export trade. In return, B provided A with a bill of exchange, or letter of payment, by which he commanded his financial agent C in Florence to make a specific payment on his behalf to merchant D, as A's financial agent. All such foreign exchange bills specified both the payment or maturity date (usually 90 days later) and the rate of exchange (pounds sterling for Florentine florins) for the payment on maturity. In effect, the Florentine merchant-bankers used the papal taxes that they collected in coin to purchase English wools, and then used bills of exchange to remit the funds to Florence and to Rome, profiting on both the financial and commercial transactions while avoiding the great risks and attendant costs of shipping bullion, in this dark, troubled era of

increased violence on both land and sea.⁴⁰

The growing importance of Florentine luxury woollens in the Italian export trade from the 1330s

Despite the high costs of using English wools (albeit subsidised by the merchant-bankers), the *lanaiuoli* of the *Arte della Lana* proved to be very successful by the 1330s in shifting much of their cloth production from the previously predominant light, cheaper fabrics to the *panni alla francesca*, the far heavier, very expensive luxury-quality woollens made exclusively from the finer English wools. According to Hoshino, the proportion of the *Arte della Lana*'s production devoted to the relatively cheap products had fallen from about two-thirds of the total (by value) in 1321–1322 to just to just 25% in 1336–1339, so that the luxury-quality *panni alla francesca* were now accounting for three-quarters of the their output, by value.⁴¹ Hoshino also notes that in 1349 the *Arte della Lana*, in replenishing losses from the Plague, admitted 33 new members, of whom 22, or two-thirds joined the sector producing these *panni alla francesca*.⁴² That assertion does not necessarily contradict his previous statement (two-thirds vs. three-quarters), since we do not know how much the new members contributed to the *Arte della Lana*'s total output by value.

The extent to which the Florentine cloth industry did shift its textile production to luxury woollens still remains a matter of dispute (as will be seen later in this study); and certainly not even Hoshino contended that such a shift ever became complete. Proof that it never became complete can be seen in the subsequent 14th-century division of the *Arte della Lana* into two rigidly distinct sectors: the more prominent, in the mid- to late-14th century, was the San Martino sector, whose members were forbidden to use any but English wools, and indeed any but the finer varieties.⁴³ Thus, in the years 1355–1368, the records of the Del Bene firm, a member of the San Martino sector, state that 80% of its English wools (49,568 kg) came from the three regions that produced

England's most expensive wools: 46.03% from the Cotswolds (Gloucestershire, Worcestershire and Oxfordshire) and Berkshire; 25.73% from the Welsh Marches (Shropshire, Herefordshire); and the remaining 7.29%, from Lincolnshire.⁴⁴

The other sector was known as the Garbo branch, whose members were conversely forbidden to use any English wools whatsoever, thereby restricting them to domestic Italian and other relatively cheap and coarse Mediterranean wools.⁴⁵ The purpose of this restriction was two-fold. The first and perhaps primary reason was to re-assure European customers that the San Martino woollens were of the very highest quality, and not adulterated with inferior wools. The second reason was to reserve all available English wools exclusively for the San Martino sector, especially when that supply was under increasing threat, for reasons to be seen shortly. The rest of this study is devoted to the fate of the San Martino sector, until it was displaced finally by the Garbo sector in the early to mid-15th century.

The volume of Florentine cloth production, from c. 1320 to c. 1420: from peak to trough

That the *Arte della Lana's* cloth production experienced a very severe decline over the course of the 14th century is indisputable, though its exact extent remains a matter of debate. A summary of that evidence, from the famous Florentine merchant and chronicler Giovanni Villani (c. 1270/80–1348, dying in the Black Death) and three leading modern historians (Hidetoshi Hoshino, Francesco Franceschi and Richard Goldthwaite), is presented in [Table 9.1](#). The first phase of that decline was due entirely to the first crisis, from the 1320s, as explained above. Yet that decline was not in itself necessarily a negative aspect of the industry's commercial fortunes. According to Villani, the industry's output had fallen from about 100,000 pieces around 1310 to about 75,000, or 25%, in the years 1336–1338.⁴⁶ Nevertheless, he also contended that the value of the output of the late 1330s was still

higher than the value in 1310, ‘when English wools were not imported,’ and when earlier cloths ‘were coarser and worth only half as much.’ His observation that the value of the 1338 output was 1.2 million gold florins indicates that the average value of each piece or bolt of cloth was only 16 florins – which is very close to Hoshino’s estimate of 17.3 florins for the value of the *Arte della Lana’s panni alla francesca* in that same year.⁴⁷ Equally revealing is Villani’s contention that the total output of about 75,000 woollens was produced by only 200 *botteghe (lanaiuoli textile firms)*, and thus with an average output of about 375 bolts per firm. Though one may well doubt the accuracy of any such estimates from a medieval chronicler, Villani’s observations are nevertheless in accordance with the known historical evidence for the 14th century *Arte della Lana*.⁴⁸

Year	Villani	Hoshino	Franceschi	Goldthwaite	Population estimates
1300	100,000	100,000			110,000 ^a
1338	75,000	75,000			90,000
1352					42,250
1355–73*			49,044		
1373			30,000	30,000	60,000
1380					54,747
1381–2*			19,296	19,000	55,000
1389			16,482		
1390			10,000		
1391			13,162	13,000	
1392			12,690		
1393			14,026		
1394			13,240		
1395			13,672		
1425			9052		
1427*		11,500	9750	11,852	37,144
1430			10,049		
1433			8333		
1469					40,332
1488		17,144		17,000	42,000

a. Population estimates for Florence in 1300 range from 90,000 to 120,000; * indicates an annual mean estimate for the years indicated (inclusive).

Table 9.1. estimated outputs of the Florentine woollen cloth industry (*Arte*

Della Lana) and of Florence's population, 1300–1488 woollen cloth outputs in bolts 36 metres in length (width unknown). Sources: Davidsohn 1928, 225–255; Franceschi 1993; Goldthwaite 2009; Herlihy and Klapisch-Zuber 1985; Hoshino 1980; Najemy 2006; Villani 2007, vol. III, 197–202: Libri XII–XIII, libro XII, cap. XCIV

Subsequently, during the 20-year period from 1355 to 1374, the output of the Florentine cloth industry underwent an overall decline of just over a third, falling to an estimated 49,044 bolts per year according to Francesco Franceschi. His data also indicate that the mean annual output per firm had fallen to just 122 bolts a year, but partly because the total number of *botteghe* had risen to 402 for these years.⁴⁹ In support of the estimate of lower mean outputs per firm, we may cite a post-Plague *Arte della Lana* ordinance of 1349 that set a quota of 220 bolts for established firms, and one of just 50 bolts for new firms in their first year of guild membership.⁵⁰ Further evidence comes from the ledgers of the aforementioned Del Bene firm, for the 14 years and three months between May 1355 to September 1369, which record a total output of 2,023 bolts, for an annual mean of just 141.14 bolts.⁵¹

That 20-year period (1355–1374) encompassed both a commercial boom and then a recession, which became so severe that in September 1370 the Del Bene firm was forced to cease all operations. Three years later, in 1373, as the recession deepened, the Florentine industry produced no more than 30,000 bolts, according to estimates now commanding widespread agreement, which is only 40% of Villani's estimate for 1338.⁵² Worse was yet to come. As that recession became a depression, and when Florentine government finances and the economy became ravaged by war, the disenfranchised textile workers staged a bitter and almost successful rebellion in 1378, known as *Il Tumulto* or the Revolt of the Ciompi. One of the Ciompi's key demands was that the *lanaiuoli* be required to produce at least 24,000 bolts of cloth a year. One may reasonably assume that annual cloth outputs were

then well under that number.⁵³ Indeed, in 1382, when the *Arte della Lana* and other Florentine merchant guilds of the *Arte Maggiori* staged their successful counterrevolution against the Ciompi allies in the *Arte Minori*, total annual cloth production had fallen to about 19,300 bolts, with an average output of just 68.32 bolts per *bottega*.⁵⁴ A decade later, by the early 1390s, according to most of these same historians, the *Arte della Lana*'s cloth output had fallen even more dramatically, by another 30% to just about 13,350 bolts a year.⁵⁵ The subsequent decline over the next twenty or so years was, however, a more gradual one.

According to all modern historians, the *Arte della Lana* reached the late-medieval nadir of its cloth output in the 1420s or 1430s. Hoshino provided our first modern estimate, for the years 1425–1430 of 11,000 to 12,000 bolts, about 42% below the estimated level for the early 1380s.⁵⁶ More recently, both Franceschi and Chorley have published even lower annual estimates of just 9000–10,000 bolts (only half of the 1380s output) in the 1420s, and just 8333 pieces in 1437.⁵⁷ Subsequently, Goldthwaite has supported Hoshino's earlier estimate, while further contending that the annual output of 11,500 bolts (as the mean of the two figures), was worth 437,662 gold florins (= £1,750,648 *lira di piccioli*). Of this total, according to Goldthwaite, the luxury-oriented San Martino sector accounted for 37% (161,935 florins), with an average value per cloth of 54.75 florins (= £219 *lira di piccioli*); and thus the Garbo sector accounted for the remaining 63% (275,727 florins) with an average value of 31.00 florins (= £124 *lira*). From this data, we may extrapolate the following division in sector output, for a total of 11,852 bolts: 2958 bolts from the San Martino sector, and 8894 bolts from the Garbo sector.⁵⁸ Thus, by the 1420s, the roles of the San Martino and Garbo sectors had been reversed from those of the mid-14th century, chiefly because of the following factors that fully explain why the former's decline was inevitable.

Factors in decline of the Florentine cloth industry (1): falling population and the demographic crises

There are at least three related factors that explain why such a drastic overall decline in output had been virtually inevitable for the Florentine cloth industry, but most especially for the San Martino sector: demographic factors, market changes (luxury reorientation), and changes in the wool supply. As destructive as was the Revolt of the Ciompi (1378–1382), we may view it more as a consequence of the factors to be considered than as a separate primary cause.

The first was the precipitous drop in both Europe's and Florence's own population, though the extent of the 14th century decline remains a matter of considerable dispute, especially for Florence. In 1978, David Herlihy and Christine Klapisch-Zuber, the most renowned demographic historians of medieval Tuscany, contended that Florence's population in 1338 was about 120,000.⁵⁹ Recently, Najemy cited that very same figure for Florence – but, for the much earlier date of 1300.⁶⁰ Even more recently, Goldthwaite has cited various estimates for Florence's population in 1300, ranging from 90,000 to 130,000, while favouring an intermediate figure of 100,000 (not the mean of 110,000), below that of the other historians cited.⁶¹ Equally frustrating is the failure of these historians even to speculate on whether or not Florence itself experienced any population decline between 1300 and 1338. Herlihy and Klapisch-Zuber do, however, provide evidence that neighbouring Prato, also an important Tuscan textile-making town, suffered a population decline of 26.9% from 1305 to 1339, while its rural *contado* population fell even more, by 38.7%. According to their data, Pistoia also suffered a major demographic decline before the Black Death, of 36.3%, but over the much longer period from 1244 to 1344.⁶² As noted earlier in this study, Marseille and Provence (southeastern France) also experienced some significant demographic losses in the early 14th century, well before the Black Death.⁶³

The Black Death itself certainly exacted a devastating toll on Florence, for the tax records of 1352 and 1355 indicate populations of only 41,600 and 41,711, respectively.⁶⁴ That is only about a third of the earlier maximum estimate of 120,000 – but does not, of course, prove that the Plague itself eliminated two-thirds of the population. Subsequently, in the later 14th century, Florence evidently enjoyed some demographic recovery, probably from rural immigration, because a tax-based census for 1380 records 54,747 inhabitants; and another indicates further growth, with a population of 60,000 in the late 1390s.⁶⁵ Thereafter, Florence's demographic fortunes turned against her, with a steady decline, chiefly from further waves of plague – especially in 1400, 1417, and 1424. The nadir of her population was reached in 1427, with only 37,144 inhabitants, as recorded in the famous *Catasto* (tax census) – just 31.0% of the medieval maximum.⁶⁶ Elsewhere in Tuscany, most neighbouring towns and the rural *contado* in general suffered population losses of similar magnitudes. Prato's urban population had fallen from 10,559 in 1339 to 6070 in 1357, reaching its nadir in 1427, as well, with just 3533 inhabitants, for an overall decline of 76%. San Gimignano suffered the very same decline, from c. 13,000 inhabitants in 1332, to 3138 in 1427.⁶⁷

Our initial and major explanation for the aforementioned dramatic decline in Florentine cloth output is, therefore, the obviously drastic loss in the town's labour supply, for which no conceivable remedy could have been found in technological innovations for an essentially labour-intensive industry. Indeed there were no technological innovations of any note in this era.⁶⁸ Nor did rural immigration continue to compensate for urban losses in the labour supply. Nevertheless, the industrial problem was not one of labour scarcity, as is clearly evident in the Ciompi's 1378 demand for a minimum quota of production.

Instead, the problem, certainly in the 1370s and 1380s, was insufficient market sales, reflecting a severe contraction in

aggregate demand. That contraction cannot, however, be seen purely in terms of a 40% fall in Europe's population, at least from the time of the Black Death, but rather in terms of all the other related, accompanying, and ancillary factors. These are the disruptions to established trade routes and trading connections from plague itself, warfare, brigandage, general insecurity, and the rising costs of financing both warfare and defence, as illustrated earlier in the analysis of rising transaction costs, which also demonstrated that market contraction necessarily led to steep increases in unit transaction costs.⁶⁹

Factors in decline of the Florentine cloth industry (2): changes in the market for florentine woollens

The second and related factor that further explains the sharp decline in the cloth outputs, not just of the *Arte della Lana*, but more specifically of its San Martino sector was the radical reorientation in markets that necessarily resulted from the shift to luxury production, one that inevitably meant far smaller markets. According to a very large amount of evidence from 14th-century cloth sales throughout the Mediterranean basin, the mean wholesale market price for Florentine woollens at least tripled, in stable gold florins, from the 1330s to the 1390s.⁷⁰ Earlier, we noted Villani's estimate of the average value of Florentine woollens in 1338 was 16 gold florins, which may have been double that of 1310. Hoshino independently computed a mean value of 17.3 florins for woollens that the *Arte della Lana* produced the same year.⁷¹ We also noted Goldthwaite's estimate of 54.75 florins for the average value of San Marino woollens in the 1420s, versus 31.00 florins for the woollens of the Garbo sector, which was not much different from the values recorded in the 1390s.

We cannot, however, rest content with price estimates from other historians, and must consider the evidence from the cloth markets themselves, a summary of which is presented here in [Table 9.2](#). The collected evidence and the summary in [Table 9.2](#)

clearly demonstrate that, in the second half of the 14th century, the most expensive woollens sold in Mediterranean towns came almost exclusively from Florence, despite growing competition in the luxury cloth trades from other Tuscan and Lombard towns.⁷² They also demonstrate that the mean price of Florentine woollens rose steadily over this half century. Thus, for the years 1354 to 1371, the mean price for Florentine woollens sold in Pisa (near Florence) was 43.35 gold florins or £6.50 sterling. The highest priced woollens were 115 florins or £17.25 sterling, compared to an average value of £2.00 to £2.40 for first quality exported English broadcloths in the 1370s. In comparison, we find that evidently high-quality Lombard woollens from Milan and Como had a far lower average sales price of 27.55 florins (£4.13) in the Pisan market, while the average price for Tuscan cloths from Prato, Siena, and Pisa sold was even lower, at 20.43 florins (£3.06).⁷³ By the 1390s, the average market price for Florentine woollens in Pisa had risen sharply to 55.9 florins (£8.38). In that same decade, in the Spanish markets of Catalonia, Valencia, and Majorca, Prato's renowned Datini firm sold a total of 2652 Florentine woollens at even higher prices, for an average of 64.43 florins (£9.66). For an interesting comparison we find that the Datini firm sold a mere 86 cloths from Prato and Genoa, with a mean value of only 30.78 florins (£4.62).⁷⁴

The value of Florentine woollens sold in Syria and Egypt between 1390 and 1405 ranged from 35 to 54 florins (from £5.25 to £8.10). But they were also the most expensive sold there, much more expensive than fine quality woollens from the Low Countries, ranging in value from 19.20 florins (£2.84) for woollens from Wervik (Flanders) to 38.5 florins (£5.78) for woollens from Mechelen (Brabant).⁷⁵ We should note, however, that in the later 14th century, Florentine woollens were 40% longer (or more) than those from the Low Countries and England.⁷⁶ Those lower priced Florentine woollens – in the range of 35 florins – were probably Garbo woollens, which then found their chief markets in the

Levant, and certainly not in the Christian realms of the western Mediterranean. It is also worth noting that in none of the Mediterranean markets – Levantine, Byzantine, or western – do any of mercantile records reveal the presence of those very cheap and light Italian serges and saia that had been so prominent in earlier eras (and, in this category, generally only the so-called ‘Irish says’).

Most Florentine woollens sold in the 1390s would have cost a master mason or carpenter then living in Florence up to or more than a year’s money-wage income (for 210 days’ paid employment), as is also demonstrated in [Table 9.2.77](#). Thus the least expensive, possibly the Garbo woollens, at 35.0 florins, would have cost 158 days’ wages (0.75 year’s money-wage income) – so that even they were hardly cheap. Those in the mid-range, at 56 florins, would have cost 252.73 day’s wages (1.20 year’s income) and the most expensive, at 64.5 florins, would have cost 291.1 days’ wages (1.37 year’s income).

The market for such costly woollens was therefore obviously not one composed of even skilled artisans, but rather was directed at, and largely restricted to, the very high-income strata of European, Byzantine, and Muslim societies. That was presumably a very narrow market indeed, composed of the wealthy mercantile bourgeoisie (especially the governing urban ‘patricians’), the lay aristocracy, and the uppermost echelons of the Church. If we also accept standard microeconomic theory concerning the law of supply and demand – that demand varies inversely with the price – then we must also assume that aggregate textile sales had fallen far more than had the total population.⁷⁸

At the same time, however, the San Martino sector of the *Arte della Lana* and Florentine merchants may well have enjoyed two compensating factors in later 14th-century cloth markets. The first was their ability to displace from, at least, the Mediterranean markets a significant proportion of the rival luxury woollens still being produced in the traditional urban luxury draperies in

Flanders and Brabant: those led by Ghent, Ypres, Bruges, Brussels, and Mechelen. Even if these Low Countries' draperies had managed to maintain some sales in Mediterranean markets, in contrast to the now virtually extinct Flemish *sayetteries*, they steadily lost more and more ground to the Florentines, so that by the later 14th and 15th centuries they became increasingly and correspondingly dependent on German and Baltic markets.⁷⁹ Furthermore, the fact that the fewer and fewer northern woollens were being marketed in the Mediterranean almost exclusively by Italian, and not by Flemish, merchants was to the obvious benefit of the *Arte della Lana*. At the same time, and somewhat surprisingly, an entirely new type of Flemish cloths was now appearing on the Mediterranean markets, with some considerable success: those produced by rival upstarts known as *nouvelles draperies*, from the smaller towns, which were producing lower-cost and thus cheaper imitations of the woollens produced by the older, traditional urban draperies. The aforementioned Wervik was one of the most prominent of these newcomers, as indicated above (see also [Table 9.2](#)).⁸⁰

The second compensating factor for both the northern and Italian producers of luxury woollens may have been the increasingly skewed distribution of landed wealth and incomes in western Europe following the Black Death. Indeed, many of the economic historians who support the concept of a late-medieval 'Great Depression' have contended that such an income redistribution was one of the contributing secondary causes (and/or consequences) of that supposed depression.⁸¹ Though such a redistribution may also help to explain the general reorientation of west European export-oriented textile production towards very high value fabrics, such contentions do not provide, in this author's view, as compelling an argument for that transformation as does the aforementioned transaction-cost thesis. To the extent that any such shifts in incomes and market expenditures did indeed occur they would also have favoured the rise and

expansion of the late medieval Italian silk industry, which posed perhaps, in the longer run, the most ominous threat to the luxury woollen textile industries of Italy and those of many other countries in western Europe.⁸²

In essence, the Florentine *lanaiuoli* in the *Arte della Lana*'s San Martino sector had decided to sacrifice the interests of the many for the few (i.e., themselves), in striving to maintain a still profitable existence for the necessarily smaller number of entrepreneurs and merchants engaged in luxury cloth production. In doing so, of course, they were bowing to the perceived logic of economic survival that was, at the very same time, dictating the fortunes of so many other textile towns 14th-century western Europe: elsewhere in Tuscany, Lombardy, Normandy, Catalonia, the Low Countries and England.⁸³

That strategy might have succeeded for most of them, had such a luxury re-orientation not required, as the *sine qua non* for commercial success, the most vital of all industrial inputs: English wools. The steeply rising prices for *exported* English wools from the 1340s help to explain why San Martino woollens became so very expensive by the later 14th century, and at the same time, why the much lower-cost domestic access to such fine wools allowed the English broadcloth industry to achieve ultimate victory over all its European rivals (though not until the later 15th century).⁸⁴

Factors in decline of the Florentine cloth industry (3): the dependence on English wools

Thus, the third and, arguably, the most powerful factor determining the inevitable decline of the San Martino sector of Florence's *Arte della Lana* was its absolute, total, exclusive dependence on English wools – indeed, on the very finest varieties.⁸⁵ The nature of that cruel dependence, for which the evidence is overwhelming and irrefutable, was two-fold. First, as also stressed earlier, wool-fineness was the single most important

determinant of both the cloth's ultra-luxury quality and its market price, for which the dyestuffs were the second most important (or equally important in the exceptional case of scarlets).⁸⁶ Second, the *Arte della Lana's* Martino sector had no feasible substitutes for these fine English wools until the subsequent development and refinement of Spain's merino wools, which, as indicated earlier, did not finally succeed in rivalling the better quality English wools until the later 16th or 17th centuries. Even then, it was the Garbo sector, not the San Martino sector, that finally adopted the merino wools.⁸⁷

Table 9.2. Prices of woollens manufactured in Italy and sold in Italian and other Mediterranean markets, with prices for competitors' woollens: 1338–1436 sold by the piece (whole cloth of 21–36 m)

Dates of sales	Places of sales	Places of manufacture	Textile type/ name	Rank order of value	Value in Florentine florins	Value in £ sterling (36d/ florin)	Value of florin in lira di soldi piccioli	Daily wage of Florentine master mason in soldi (mean)	No. days' wages to buy 1 cloth
1338–39	Florence	Florence	woollens (Villani)	mean	16,000	2,400	62,500	7,240	138.122
			woollens (Hoshino)	mean	17,300	2,595	62,500	7,240	149.344
1354–1371	Pisa	Italy							
		Florence	San Martino	mean	43,350	6,503	68,000	15,613	188.804
		Milan, Como	good quality cloth	mean	27,550	4,133	68,000	15,613	119.990
		Prato, Pisa, Siena	medium quality cloth	mean	20,430	3,065	68,000	15,613	88.980
		Florence	San Martino	mean	55,900	8,385	76,500	16,458	259.834
1390	Pisa	Florence	San Martino	mean	55,900	8,385	76,500	16,458	259.834
c. 1380–1400	Naples	Italy							
	Sicily								
		Florence	San Martino	lowest	58,540	8,781	76,500	16,458	272.105
		Florence	San Martino	mean	60,740	9,111	76,500	16,458	282.331
		Florence	San Martino	highest	62,930	9,440	76,500	16,458	292.511
		Milan, Como	dyed woollens	lowest	40,000	6,000	76,500	16,458	185.928
		Milan, Como	dyed woollens	mean	43,360	6,504	76,500	16,458	201.546
		Milan, Como	dyed woollens	highest	45,000	6,750	76,500	16,458	209.169
		Prato, Pisa, Siena	dyed woollens	lowest	21,680	3,252	76,500	16,458	100.773
		Prato, Pisa, Siena	dyed woollens	mean	26,020	3,903	76,500	16,458	120.946
		Prato, Pisa, Siena	dyed woollens	highest	30,350	4,553	76,500	16,458	141.073
		Catalonia							
		Perpignan	dyed woollens	mean	17,000	2,550	76,500	16,458	79.019
		Vilafranca	dyed woollens	mean	9,370	1,406	76,500	16,458	43.554
		France							
		Languedoc	dyed woollens	mean	16,000	2,400	76,500	16,458	74.371
		Gignac, Beziers	dyed woollens	mean	17,500	2,625	76,500	16,458	81.343
		Carcassonne	dyed woollens	mean	19,000	2,850	76,500	16,458	88.316
		Flanders							
		Wervik	dyed woollens	mean	26,000	3,900	76,500	16,458	120.853

<i>Dates of sales</i>	<i>Places of sales</i>	<i>Places of manufacture</i>	<i>Textile type/ name</i>	<i>Rank order of value</i>	<i>Value in Florentine florins</i>	<i>Value in £ sterling (36d/ florin)</i>	<i>Value of florin in lira di soldi piccioli</i>	<i>Daily wage of Florentine master mason in soldi (mean)</i>	<i>No. days' wages to buy 1 cloth</i>
c. 1390 to 1410	Spain: Barcelona	Italy							
	Valencia	Florence	dyed woollens	mean	64.430	9.665	76.500	17.260	285.567
	Majorca	Prato, Genoa	dyed woollens	mean	30.780	4.617	76.500	17.260	136.424
		Flanders							
		Wervik, Kortrijk	dyed woollens	mean	27.900	4.185	76.500	17.260	123.659
		Comines, Menin	dyed woollens	mean	27.900	4.185	76.500	17.260	123.659
		Bruges	dyed woollens	mean	44.010	6.602	76.500	17.260	195.062
		Brabant							
		Brussels	dyed woollens	mean	44.180	6.627	76.500	17.260	195.815
		Mechelen	dyed woollens	mean	44.180	6.627	76.500	17.260	195.815
	France	Montivilliers	dyed woollens	mean	31.480	4.722	76.500	17.260	139.526
		Spain							
		Perpignan	dyed woollens	lowest	10.670	1.601	76.500	17.260	47.292
		Perpignan	dyed woollens	mean	13.620	2.043	76.500	17.260	60.367
		Perpignan	dyed woollens	highest	18.670	2.801	76.500	17.260	82.749
		Puigcerda	dyed woollens	mean	10.670	1.601	76.500	17.260	47.292
		Vilafranca	dyed woollens	mean	8.800	1.320	76.500	17.260	39.003
		Vilafranca	dyed woollens	mean	8.400	1.260	76.500	17.260	37.231
		Barcelona	dyed woollens	mean	11.860	1.779	76.500	17.260	52.566
		England							
		Essex	straits (dozens)	mean	6.120	0.918	76.500	17.260	27.125
c. 1390-1402	The Levant: Italy			Place/date					
	Alexandria								
	Damascus	Florence	woollens lowest range	D: 1390	35.000	5.250	76.500	16.635	160.956
	Constantinople	Florence	woollens medium range	D: 1390	46.000	6.900	76.500	16.635	211.542
		Florence	woollens highest range	D: 1390	54.000	8.100	76.500	16.635	248.332
		Florence	panni di fontego	D: 1390	27.000	4.050	76.500	16.635	124.166
<i>Dates of sales</i>	<i>Places of sales</i>	<i>Places of manufacture</i>	<i>Textile type/ name</i>	<i>Rank order of value</i>	<i>Value in Florentine florins</i>	<i>Value in £ sterling (36d/ florin)</i>	<i>Value of florin in lira di soldi piccioli</i>	<i>Daily wage of Florentine master mason in soldi (mean)</i>	<i>No. days' wages to buy 1 cloth</i>
		Florence	woollens lowest range	D: 1398	30.000	4.500	76.500	16.635	137.962
		Florence	woollens medium range	D: 1398	43.300	6.495	76.500	16.635	199.125
		Florence	woollens medium range	D: 1398	45.000	6.750	76.500	16.635	206.943
		Florence	woollens lowest range	A: 1400	30.000	4.500	76.500	16.635	137.962
		Florence	woollens lowest range	A: 1402	37.500	5.625	76.500	16.635	172.453
1390-1395	The Levant:	Catalonia							
		Vilafranca	dyed woollens	D: 1390	16.500	2.475	76.500	16.590	76.085
		Vilafranca	dyed woollens	D: 1395	14.500	2.175	76.500	16.590	66.863
		Barcelona	dyed woollens	D: 1390	15.500	2.325	76.500	16.590	71.474
		Barcelona	dyed woollens	D: 1395	12.000	1.800	76.500	16.590	55.335
		Puigcerda	dyed woollens	D: 1395	12.500	1.875	76.500	16.590	57.640
		Perpignan	woollen 'simples'	D: 1395	14.500	2.175	76.500	16.590	66.863
		Perpignan	panni alla francesca	D: 1395	17.300	2.595	76.500	16.590	79.774
1390-1395	The Levant:	France							
		Louviers	dyed woollens	A:1390	25.500	3.825	76.500	16.590	117.586
		Narbonne	dyed woollens	A: 1396	10.500	1.575	76.500	16.590	48.418
		Narbonne	dyed woollens	D: 1396	10.500	1.575	76.500	16.590	48.418
		Narbonne	dyed woollens	A: 1399	19.440	2.916	76.500	16.590	89.642
1395	The Levant:	Flanders							
		Wervik	dyed woollens	D: 1395	19.200	2.880	76.500	16.590	88.535
1395	The Levant:	Brabant							
		Mechelen	dyed woollens	D: 1395	38.500	5.775	76.500	16.590	177.532
1394-98	The Levant:	England				florin/40d			
		Norfolk or Ireland?	Saia d'Irlanda	D: 1394	4.500	0.675	76.500	16.590	20.750
		Norfolk or Ireland?	Saia d'Irlanda	D: 1395	5.300	0.795	76.500	16.590	24.439
		Norfolk or Ireland?	Saia d'Irlanda	D: 1397	6.000	0.900	76.500	16.590	27.667

Dates of sales	Places of sales	Places of manufacture	Textile type/ name	Rank order of value	Value in Florentine florins	Value in £ sterling (36d/ florin)	Value of florin in lira di soldi piccioli	Daily wage of Florentine master mason (in soldi (mean))	No. days' wages to buy 1 cloth
		Norfolk or Ireland?	Saia d'Irlanda	D: 1398	3,550	0,533	76,500	16,590	16,370
1405-1410	The Levant:	England							
		Worcestershire	Cotswolds	D: 1405	35,000	5,250	76,500	17,820	150,253
		Worcestershire	Cotswolds	D: 1410	14,700	2,205	76,500	17,820	63,106
1414-1416	The Levant:	England							
		West Country	Panni Bastardi	D: 1414	25,000	4,167	80,000	18,160	110,132
		West Country	Panni Bastardi	D: 1414	28,000	4,667	80,000	18,160	123,348
		West Country	Panni Bastardi	D: 1416	20,000	3,333	80,000	18,160	88,106
		Salisbury	Wiltshires	D: 1416	20,000	3,333	80,000	18,160	88,106
		Essex	straits (dozens)	D: 1416	6,000	1,000	80,000	18,160	26,432
1436	The Levant:	Flanders				40d/florin			
		Wervik	dyed woollens	C: 1436	28,300	4,717	83,000	19,520	120,333
		Wervik	dyed woollens	C: 1436	22,000	3,667	83,000	19,520	93,545

Place names by initials: A: Alexandria; C: Constantinople; D: Damascus

Sources:

Cloth prices: Ashtor 1978, vol. II, 303–377; 1983, 151–156, 341–366; 1988, 227–57; Melis 1959, 321–365; 1962, vol. III, 219–243; 1962, vol. I, 488 (doc. no. 350: Aug. 1390), 536–537, 542, 554; Munro 1997, 42–44 (table 3); 2003b, 318–324 (table 5.10).

Values of the Florentine florin: Spufford 1986, 4–23; Bernocchi 1976, 84–86.

Florentine Masons' Wages (masters): Malanina 2013, *The Italian Economy*, no. 4: Wage Rates (1290–1990), as adapted by J. Munro, in: <http://www.economics.utoronto.ca/munro5/StatResources.htm>: MalanimaItalianPriceWages.xls

The English crown (i.e., the king and his governing council) was certainly far from being oblivious to that overwhelming external dependence, especially in the Low Countries, Normandy and Italy – a dependence that it quickly exploited by imposing higher and higher taxes on wool exports. In the jargon of Economics, one might contend that the English crown took advantage of the overseas buyers' inelastic demand for English wool, a situation some might compare to the contemporary French royal *gabelle* on salt consumption. That comparison, however, is erroneous because the elasticity of demand for an input – such as wool – is fundamentally derived from the demand for the final product. European demand for luxury woollens was not so inelastic – especially when Italian silks became available as important substitutes.

Nevertheless wool export taxes did indeed become the

fundamental core of English royal fiscal policies and the crown's overwhelmingly predominant source of income – partly explaining why the crown never resorted to coinage debasements before Henry VIII's Great Debasement (1542–1547), by which time English fiscal policies had virtually extinguished the wool export trade.⁸⁸ One may also observe that wool export taxes did not become the core of English fiscal policies until the 1330s, a decade marking, perhaps fortuitously, the onset of both the west European shift to luxury textiles and of the Anglo-French Hundred Years' War (1337–1453), whose terrible and unrelenting costs vastly exceeded the fiscal capacities of the two major combatants. Thus, as already noted, the first export tax on wools, which Edward I had imposed in 1275, was quite modest: 6s 8d (80d) sterling per exported sack for both denizens and aliens, amounting to only 4.91% of the average value (see [Table 9.3](#)). Though the export taxes (collectively known as the Customs and Subsidies) rose thereafter, the denizen duty averaged only 10.33s per sack in the early 1330s (5.37% of the woolsack's value); but by then the alien duty had risen to an average of 14.60s per sack (9.67% of the value). Immediately on inaugurating the Hundred Years' War, in 1337, Edward III (r. 1327–1377) more than doubled those export taxes to 26s 8d per sack for denizen exports and to 30s 0d per sack for aliens (i.e., chiefly the Italians). Thereafter, the crown and Parliament steadily increased those export taxes, so that by 1370 they amounted to just over 50s 0d per sack for denizens and 53s 4d per sack for aliens (now including an extra 'Calais duty'). In 1399, under Richard II (r. 1377–1399), Parliament again raised the alien duty, to 60s 0d (£3 sterling) per sack (see [Table 9.4](#)).⁸⁹

Table 9.3. Prices for English wools, for better-quality exported wools, and price indexes for wools, livestock prices and the Phelps et al. (1956) composite price index for southern England wool prices in pounds sterling per sack of 364 lb (c. 165 kg) in quinquennial means: 1271–1275 to 1446–1450. Price index base: mean of 1451–1475 = 100

Years (5 year means)	Mean price per sack, all wools	Index 1451-75 = 100 £3.4917	Mean price per sack, better quality wools*	Index 1451-75 = 100 £4.8544	PB and H Livestock Index A: beef, pigs mutton 1451-75 = 100	PB and H Livestock Index B: butter and cheese 1451-75 = 100	Phelps et al. CPI 1451-75 = 100 (Munro)
1271-75	4.887	139.97	5.061	104.251	106.889	81.694	105.733
1276-80	6.692	191.64	6.791	139.898	107.620	86.140	100.023
1281-85	5.616	160.83	5.700	117.411	103.705	79.908	105.184
1286-90	6.059	173.53	6.281	129.388	91.023	80.065	81.953
1291-95	5.107	146.26	5.402	111.284	85.490	82.300	105.375
1296-1300	5.520	158.10	5.508	113.471	101.148	79.936	100.285
1301-05	5.498	157.47	5.441	112.081	94.467	78.503	91.679
1306-10	7.063	202.27	7.006	144.320	109.551	89.608	103.728
1311-15	5.775	165.39	6.087	125.391	123.486	112.898	110.443
1316-20	6.734	192.84	7.012	144.444	132.724	119.145	154.560
1321-25	7.446	213.25	7.834	161.369	111.064	127.634	130.704
1326-30	6.211	177.88	6.649	136.964	105.950	101.686	104.712
1331-35	5.031	144.08	5.370	110.614	110.021	95.281	109.108
1336-40	4.264	122.11	4.646	95.699	96.346	94.622	89.256
1341-45	4.498	128.83	4.947	101.910	89.666	88.547	85.533
1346-50	4.222	120.91	4.713	97.093	94.572	97.299	100.064
1351-55	3.923	112.36	4.446	91.577	113.987	102.921	126.472
1356-60	4.050	116.00	5.243	108.009	108.455	112.790	118.092
1361-65	4.306	123.31	5.606	115.474	131.419	104.738	137.976
1366-70	5.624	161.08	6.689	137.799	131.607	106.830	136.460
1371-75	6.422	183.92	7.895	162.637	143.653	107.403	127.345
1376-80	6.582	188.49	7.536	155.243	118.580	105.066	109.891
1381-85	5.097	145.96	5.995	123.494	110.890	105.709	113.190
1386-90	4.111	117.74	5.071	104.463	108.055	96.590	101.233
1391-95	4.266	122.17	4.953	102.039	106.471	73.130	103.953
1396-1400	4.814	137.86	5.241	107.966	111.064	100.898	110.648
1401-05	5.065	145.05	5.702	117.455	110.071	102.790	112.653
1406-10	4.974	142.44	6.219	128.114	106.555	106.878	109.927
1411-15	5.426	155.38	5.954	122.651	105.599	110.132	108.261
1416-20	4.155	119.00	4.592	94.586	103.055	107.879	113.598
1421-25	4.205	120.42	5.269	108.538	93.213	91.331	103.740
1426-30	4.613	132.11	5.015	103.298	99.581	104.979	112.610
1431-35	4.928	141.13	5.613	115.634	106.078	106.810	109.122
1436-40	4.440	127.16	5.322	109.627	109.585	110.342	124.218
1441-45	4.188	119.93	5.201	107.145	96.624	97.290	92.574
1446-50	4.119	117.96	5.379	110.796	106.245	106.978	101.241

** Prices for wools from Wiltshire, Hampshire, and St Swithun's manors (all of the Bishop of Winchester's manors), Wiltshire and the Berkshire Downs, the Vale of White Horse to Thames Valley; Oxfordshire, Berkshire and adjacent Wiltshire; Worcestershire, the Cotswolds (Oxfordshire, Gloucestershire and adjacent Wiltshire); the Chilterns (Oxfordshire, Buckinghamshire, Hertfordshire); NE Oxfordshire and north Buckinghamshire.*

Sources:

(1) English wool prices: Lloyd 1973, 35–51: better quality wools, from cols 2–5, 10–13.

(2) English commodity prices: Archives of the British Library of Political and Economic Science, the Phelps Brown Papers: boxes Ia:324, J.IV.2a. From these working papers, I constructed an entirely new index based on actual prices rather than their index numbers. I first calculated the annual prices for all the commodities in the basket for the years from 1264–1700. Using the Phelps

Brown and Hopkins commodity weights, I calculated the sum value of those commodities, to calculate the annual value of the basket. I then constructed the price index, with their base, 1451–1475 = 100, from the values of the basket for each year in that 25-year base period. These index numbers vary, sometimes considerably, from those published in Phelps *et al.* 1956, 296–314.

5 year mean	Price of wool sack (better wools) in £ sterling*	Denizen export duties in shillings (20s=£1)	Denizen duty as % of wool price	Alien export duties in shillings (20s=£1)	Alien duty as % of wool price	Total wool sacks exported	Denizen wool exports in sacks	Denizen % of total exports	Alien wool exports in sacks	Alien % of total exports
1276–80	6.791	6.667	4.91	6.667	4.91					
1281–85	5.700	6.667	5.85	6.667	5.85	26,897.20				
1286–90	6.281	6.667	5.31	6.667	5.31	26,040.80				
1291–95	5.402	14.667	13.58	14.667	13.58	27,919.20				
1296–1300	5.508	22.667	20.58	22.667	20.58	23,041.20				
13010–5	5.441	6.667	6.13	8.667	7.96	32,344.00				
1306–10	7.006	6.667	4.76	10.000	7.14	39,016.20	23,041.60	59.06	15,974.60	40.94
1311–15	6.087	6.667	5.48	6.667	5.48	35,328.60				
1316–20	7.012	8.332	5.94	9.166	6.54	26,084.60				
1321–25	7.834	8.000	5.11	12.000	7.66	25,316.03	14,074.30	55.59	11,241.73	44.41
1326–30	6.649	12.227	9.19	15.560	11.70	24,997.60	17,888.87	71.56	7,108.73	28.44
1331–35	5.370	10.373	9.66	14.559	13.56	33,645.60	24,633.00	73.21	9,012.60	26.79
1336–40	4.646	29.556	31.81	41.501	44.67	20,524.80	13,180.00	64.21	7,344.80	35.79
1341–45	4.947	40.247	40.68	43.333	43.80	18,075.58	10,565.51	58.45	7,510.07	41.55
1346–50	4.713	40.000	42.43	43.333	45.97	27,183.13				
1351–55	4.446	40.000	44.99	43.333	48.74	30,750.40	10,169.40	33.07	20,581.00	66.93
1356–60	5.243	40.000	38.14	43.333	41.32	32,666.40				
1361–65	5.606	44.110	39.34	46.110	41.13	30,129.20	20,899.95	69.37	9,229.25	30.63
1366–70	6.689	49.650	37.11	50.000	37.37	26,451.80	16,345.60	61.79	10,106.20	38.21
1371–75	7.895	51.584	32.67	53.333	33.78	25,867.80	16,712.02	64.61	9,155.78	35.39
1376–80	7.536	51.584	34.22	53.333	35.38	20,470.20	16,898.00	82.55	3,572.20	17.45
1381–85	5.995	51.584	43.02	53.333	44.48	17,517.40	13,886.80	79.27	3,630.60	20.73
1386–90	5.071	50.100	49.40	52.166	51.43	19,312.00	15,574.20	80.65	3,737.80	19.35
1391–95	4.953	51.414	51.90	53.163	53.66	18,513.80	13,593.20	73.42	4,920.60	26.58
1396–1400	5.241	51.584	49.21	56.555	53.95	16,889.60	14,515.80	85.95	2,373.80	14.05
1401–05	5.702	52.771	46.28	61.187	53.66	12,904.20	11,803.40	91.47	1,100.80	8.53
1406–10	5.759	51.584	44.78	60.000	52.09	14,968.20	13,392.80	89.48	1,575.40	10.52
1411–15	5.954	51.584	43.32	60.000	50.39	13,593.20	12,633.20	92.94	960.00	7.06
1416–20	4.592	51.584	56.17	68.000	74.05	14,365.00	13,355.40	92.97	1,009.60	7.03
1421–25	5.269	45.425	43.11	62.658	59.46	14,245.20	13,363.60	93.81	881.60	6.19
1426–30	5.015	41.584	41.46	53.333	53.18	13,358.60	12,429.00	93.04	929.60	6.96
1441–45	5.201	41.584	39.97	63.333	60.88	8,029.40	6,502.20	80.98	1,527.20	19.02
1446–50	5.379	41.584	38.66	63.333	58.88	9,765.20	9,176.80	93.97	588.40	6.03

*Prices for wools from Wiltshire, Hampshire and St Swithin's manors (all of the Bishop of Winchester's manors), Wiltshire and the Berkshire Downs, the Vale of White Horse to Thames Valley; Oxfordshire, Berkshire and adjacent Wiltshire; Worcestershire, the Cotswolds (Oxfordshire, Gloucestershire and adjacent Wiltshire); the Chilterns (Oxfordshire, Buckinghamshire, Hertfordshire); NE Oxfordshire and north Bucks.

Sources:

- (1) English wool prices: Lloyd 1973, 35–51; better quality wools, from cols 2–5, 10–13.
- (2) English wool export duties (including the Calais duty on denizen exports to Calais, from 1363): Great Britain, Public Record Office 1911–1962, vols IV (1327–1337) to XXI (1471–1485); Great Britain, Parliament 1767–1777, vols II–V; Barnes 1918, 137–177; Gras 1918, 76–80; Carus Wilson and Coleman 1963, 194–196; Ormrod 1991, 149–183.
- (3) English wool exports calculated from Carus Wilson and Coleman 1963, 13–16, 36–74.

Table 9.4. Mean Prices of English Wools, Wool Export Taxes, and Wool Exports by Denizen (Native) and Alien Merchants, in 5 year means from 1276–1280 to 1446–1450

For the first quarter-century of this fiscal policy, however, the chief tax burden was not borne by the foreign buyers, as originally intended, but rather by England's wool growers. When the growers found themselves forced to accept lower prices from the wool-export merchants (Table 9.3), their powerful leaders in Parliament – the landed aristocracy, bishops, and archbishops in the Lords, and the wealthier gentry in the Commons – mounted protests that soon forced Edward III to find an alternative solution. In 1363, the Crown chose the recently conquered French port of Calais to be the official staple port through which all wool exports to continental Europe had to pass. To further the Crown's goal of having the export tax burden fully passed on to foreign buyers, the leading wool merchants were given the powers of a cartel in the form of the Company of the Staple (i.e., to fix wool export prices). Initially, the Italian merchants were also victims of this royal Staple policy. However, in 1388 Parliament granted the Italians an important exemption in return for their agreement to pay even higher export duties: licences to ship English wools directly from Southampton via the 'Straits of Marrock' (Gibraltar) to Italian ports.⁹⁰

These export duties, both denizen and alien, were a fixed amount per sack, rather than a percentage value (*ad valorem*). Consequently, they became all the more onerous with the general deflation that beset England (and northern Europe) from the later 1370s. From the quinquennium of 1366–1370 to that of 1391–1395, the English consumer price index fell by 23.82%; the mean prices for better quality wools (those exported), having peaked at £7.895 per sack in 1371–75, then fell by 34.328% to a mean of £4.953 in 1391–95 (Table 9.3). By the late 1390s, the denizen export tax amounted to 49.21% of the mean value of those wools, while the higher alien export tax was 53.95% of that value (Table

9.4).⁹¹ Even the lower denizen export duties proved to be a cruel, indeed almost fatally damaging, burden for the luxury woollen draperies in the traditional towns of the southern Low Countries, in so far as one may judge from their tax farm accounts. From the quinquennial mean of 1351–1355 (thus after the Black Death) to that for 1401–1405, the market value of those annual drapery tax-farms fell as follows: for Ghent, by 89.00%; for Mechelen, by 61.82%; and for Leuven, by 43.91%.⁹² While this severe industrial decline was due to a complex set of factors, internal and external, certainly the growing wool export tax burden was a very major one. For, according to later evidence from the luxury woollen draperies in the Low Countries, their Calais Staple wools accounted for 65–70% of their pre-finishing production costs.⁹³ The same may also have been true for Florence's *Arte della Lana*, whose equally severe fall in cloth outputs was specified earlier.⁹⁴

We find much more precise evidence for the decline in aggregate English wool exports, with an even sharper decline for alien exports destined for Italy. We may now attribute this decline to both English fiscal policies, along with the Staple's cartel organization, and to the fall in aggregate demand from continental producers of luxury woollens, reflecting many other adversities, including Europe's post-Plague demographic crises. From the quinquennium 1361–1365 to 1401–1405, total English wool exports fell from an annual mean of 30,129.20 sacks to one of just 12,904.20 sacks: a decline of 57.17% (Table 9.4).⁹⁵ This, it must be noted, is much greater than most estimates for western Europe's population decline in this era. Obviously, so burdened with the much higher alien export duties, Italian merchants suffered a far greater fall in wool exports, from a mean of 9229.25 sacks in 1361–1365 to a mean of just 1100.80 sacks in the 1401–1405, so that their share of total exports fell sharply, from 30.63% to 8.53% of total exports (Table 9.4).

The aftermath of the second crisis: the role of Spanish and

domestic Italian wools in the Garbo sector of the Florentine cloth industry in the 15th century

Consequently, Florence's *Arte della Lana* would have been doomed to ruin, if not virtual extinction, had it not been able to find some alternative source of good wools. Ultimately, as indicated earlier, the Italians found that alternative in Spain's merino wools, whose origins may now be dated to the mid-14th century.⁹⁶ Indeed, some Italian draperies, beginning with Milan in 1375, soon began experimenting with these wools, then known as *lane di San Matteo*, after the Maestrazgo region (Valencia, Aragon) from which they were obtained.⁹⁷ But during the later 14th and very early 15th centuries, the quality of these Spanish *San Matteo* wools was evidently still very poor, since, in the cloth industries of Milan, Florence, Verona, Prato, and Genoa, they ranked fourth or even fifth in value, after English (always the highest priced), Minorcan, Majorcan, and French (Provençal) wools.⁹⁸

Subsequently, during the early to mid-15th century, the quality of many of the merino wools came to be improved, so much so that in the southern Low Countries the so-called *nouvelles draperies*, having encountered new and even more onerous fiscal burdens imposed on the English wool staple in Calais, began experimenting with merino wool from the late 1420s, began experimenting with merino wools, with some considerable success, but almost always in a mixture with fine English wools. The traditional urban draperies, however, resolutely refused to experiment with Spanish wools before the 16th century, fearing that doing so would seriously undermine their jealously guarded reputation for fine quality in foreign markets. Consequently, most suffered irredeemable decay.⁹⁹

In Florence, the San Martino sector of the *Arte della Lana* similarly refused to consider the use of Spanish wools. Indeed, as already noted, their *lanaiuoli* were forbidden by guild statutes from using any but fine English wools.¹⁰⁰ Thus, it was the Garbo sector of the *Arte della Lana* that chose to adopt the new Spanish merino

wools, although they and other Italian urban draperies in and through the mid-15th century were initially thwarted from doing so by still unexplained obstacles in securing good quality *San Mateo* wools from Spain. As a consequence, and as temporary mid-century expedient, Florence's Garbo sector instead used domestic Italian wools, known as *matricina* wools, to produce relatively cheap woollens, exported chiefly to Levantine markets.¹⁰¹

Possibly the Garbo sector's inability to acquire reasonably good quality merino wools in the mid-century may have been a factor in delaying the further decline of the San Martino sector, which still maintained some respectable sales in the ultra-luxury markets. One major example was papal-dominated Rome, which had again become one of the larger and wealthier cities in Europe.¹⁰² Thus, of the 27,210 woollens sold in Rome in the quarter century 1451–1476, almost half (13,528 = 49.72%), were from Florence's San Martino sector of which 5354 (39.58%), were the extremely costly grain- or kermes-dyed scarlets (*panni di grana*).¹⁰³ Just the same, the Garbo sector, despite its ongoing reliance on *matricana* wools, had long ago surpassed the San Martino sector. In the 1470s, according to Hoshino's calculations, the Garbo sector then produced about two-thirds of the *Arte della Lana*'s total output of 17,144 bolts a year – a significant recovery from the 1420s.¹⁰⁴ But the mean value of Garbo woollens exported to the Levant was then only 16.7 gold florins, compared to an average price of 31 florins for its woollens in the 1420s. Thus the much lower prices of the 1470s may reflect the inferior value of these *matricina* wools.¹⁰⁵

In the very late 15th century, however, the fortunes of the Garbo sector suddenly experienced a very substantial improvement. First, from the 1490s, the establishment of new, direct, and Castilian-dominated commercial networks with Spain had restored, and in great abundance, the supply of merino wools.¹⁰⁶ Second, by then the quality of those merino wools had been very substantially improved through sheep breeding and the better grazing techniques of Spanish transhumance, reflected in

their now much higher prices. As indicated earlier, however, not until the later 16th or early 17th century did such improvements finally allow the best merino wools to rival or even outclass the quality of England's finest wools.¹⁰⁷ From the 1490s to the 1560s, Spanish wools predominated in both the Florentine (Garbo) and the Venetian cloth industries, the latter having surpassed the Florentines from the 1520s. But that story – and how both finally succumbed to competition from the English cloth trade – has been told elsewhere.¹⁰⁸

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10. The Trade with Fustian from Germany to Denmark in the Late Middle Ages

Kilian Baur

I. Introduction¹

In his important work about fustian production in Central Europe, Wolfgang von Stromer gave new insights into fustian production mostly, though not exclusively, in southern Germany. He was mainly interested in the fustian production's political and economic circumstances, not in its trade. However, he also developed a map that showed the distribution of fustian in Europe. In Scandinavia only the city of Kalmar is marked as destination for fustian trade.² In the following paper I will show that Kalmar was not the only town in Scandinavia that was reached by the cotton/linen cloth. I will supplement von Stromer's scheme by adding fustian trade from the Holy Roman Empire to Denmark as one example of a Scandinavian country. First of all I will give an introduction to the confusing and inconsistent terminology of fustian in the middle ages. Furthermore I will give a short overview on the production areas of fustian and their output. The following sections will focus on the actual topic of this paper: the trade with fustian from the Holy Roman Empire to Denmark. Beginning with southern Germany the different trading hubs in the Holy Roman Empire will be presented. Finally, I will highlight the way of fustian from this commercial areas to Schleswig, Holstein and Denmark and will point out its consumption in this regions.

II. Terminology

In consideration of the fact that fustian trade from the Holy Roman Empire to Denmark would have crossed three different language areas – the Upper German, Low German and Danish – it is important to use clear terminology. In each language there are several indisputable terms for fustian like *Barchent*, *Fustein*, *Schürlitz* (in Basel) and *Sartuch* (in Cologne) in German and in Danish, *olmerdug*.³ To the terms directly naming fustian in the German speaking areas, common *Fardel* must be added. Besides fustian, this unit was also used for silk. In this case it was usually marked by an added comment. A *Far* contained between 42 and 45 pieces of cloth with a length of 24 ells.⁴

A problem arises with two terms that are of central importance for the exploitation of late medieval fustian trade to Denmark: the Middle Low German *Sardok* and the Danish *sardug*. For *Sardok* many definitions exist, whereas *sardug* is mainly described in only two different variations. Of all these definitions, few have been substantiated, as they are named solely in indices, introductions or similar. After the most common definition, *Sardok* is a wool/linen fabric.⁵ Wilhelm Stieda presents a second definition in the preface for the edition of the letters of the family Veckinchusen. Generally, he regards *Sardok* as wool/linen cloth, but fabrics from Ulm and Augsburg he considers as an exception because of the use of cotton instead of wool.⁶ Even the Middle Low German Dictionary by Lübben/Schiller considers *Sardok* and *Barchent* as equal fabrics (“sardok vel perchem, parchamus (Barchent)”) but *Sardok* is defined as a wool/linen fabric (“grobes, starkes Zeug, halb Leinen, halb Wolle”).⁷ The fact that this definition contradicts the one of *Barchent* which meant a cotton/linen fabric, is not mentioned. A third definition describes *Sardok* as a cotton/linen fabric, which would mean fustian. Franz Bastian declares that the terms are equivalent (“Sardoke, d. h. nichts anderes als Barchente”) and Wilhelm Koppe uses *Barchent* and *Sardok* synonymously. Without any comment von Stromer also uses both terms interchangeable.⁸

That *Sardok* means fustian arises from records of cloth transactions from the famous Veckinchusen family. Sivert Veckinchusen reported in a letter in August 1410 that he had sent five bales of *Sardok* from Frankfurt am Main to Hans van Mynden in Lübeck.⁹ Frankfurt was a place for the exchange of goods between Lower and Upper Germany and an important market for fustian. About three weeks before, he had written to his brother that he was waiting for 60 “verdele sardoke [...] van Oeusborch”.¹⁰ Augsburg was one of the biggest Swabian fustian production centres. A *Fardel* usually contained fustian. The use of the word *Sardok* for silk is not known, and with Augsburg as the origin, this definition is improbable, because there was no significant silk production.¹¹ In the account books of Hildebrand Veckinchusen, it becomes apparent that a bale of *Sardok* is synonymous with *Fardel*: First “4 fardelle” are mentioned, and then one bale and later “3 balle sardoke” are sold.¹² If the provenance of *Sardok* is also mentioned, then it is always in conjunction with the larger southern production centres of fustian. In August 1410, Sivert Veckinchusen asked his brother Hildebrand for the price of Augsburg fustian in Bruges (“wat Osborger sardoke dar gelden”).¹³ A ship sunken on its way towards Tallinn in 1469 had “4 Ulmer zardoke” on board¹⁴ and in the accounts of the duke of Schleswig and Holstein “melansche” (Milanese) and Augsburg *Sardok-e* are mentioned in 1530/31.¹⁵ The congruence of the two terms is reflected clearly in the letters of the Veckinchusen in which Reinhard Noiltgin talks about the sale of “2 ballen fostens”, another time “5 ballen sardok” are mentioned, and “3 Ausborger fardel, half oissen und half leven”.¹⁶

It is more difficult to deal with the definition of the Danish term *sardug*. There are not as many sources available about its origin as there are for *Sardok*. Therefore complementary considerations are necessary. There are two definitions available. Like the Middle Low German term, *sardug* is most commonly described as a wool/linen cloth.¹⁷ It is rare to find it described as

a cotton/linen fabric. This definition can be found in Christian Molbech's *Dansk glossarium*, Oluf Nielsen's History of Copenhagen and Kolderup-Rosenvinge's collected laws.¹⁸ The Danish word *sardug* is derived from the German word *Sardok*¹⁹ which means, as mentioned before, fustian. *Sardok* has been exported to the duchies of Schleswig and Holstein, where it was available in many towns (see section V). The idea that trade with fustian stopped at the border between the Danish kingdom and the duchy of Schleswig is not convincing because there were several markets in and surrounding Schleswig which were significant for the export of Danish goods.²⁰ It seems more probable that fustian trade also took place north of the duchies and together with the trading goods the word *sardug* was imported into the Danish region and language. The phrase "14 ballas sardog" that is listed in the Lübeck Niederstadtbuch illustrates the conformity of the Danish and the Middle Low German terms.²¹

The existence of southern German fustian north of the duchies can be proofed by the finding of lead seals from Augsburg in Denmark.²² If *sardug* didn't mean fustian these could be the relicts of imported *olmerdug* as well. However, this would mean that all fustians, regardless of their origin – whether Ulm, Augsburg, Milan or another city – were called in the Late Middle Ages 'cloth from Ulm', which is questionable. According to Kalkar's dictionary the first use of the term *olmerdug* appears in 1558. But it is also mentioned in Queen Christina's accounts 50 years earlier. This gives the impression that the word *olmerdug* probably became into general use around the turn of the century. There is a significantly older mention of *sardug* in 1422.²³ This leads to the assumption that *sardug* – as an older word for fustian – was partly replaced and supplemented for Ulm fustian by *olmerdug*, which did not become the exclusive term for fustian at this time. Its coexistent use with *sardug* is certain: A legislative record of the Danish king Christian III in 1540 (32 years after the notation of *olmerdug* in Queen Christina's accounts) fixed the price of "en Alne Ulmers

Sardug” and “en Alne Ausburg Sardug”.²⁴ At the same time this is one of two examples that mention *sardug* in context with the big Swabian fustian production centres. The second one is from an inventory of the castle Silkeborg, in which *sardug* from Augsburg is mentioned.²⁵

The congruence of *sardug* and fustian is apparently not completely absolute. In 1545 the dressmakers of Copenhagen obtained permission to use “den stor westerlendiske saardug”, which is *sardug* from England.²⁶ However fustian production reached England around 1590 via the Low Countries, which got their first fustian production in 1513 and their second decades later.²⁷ As England was a centre for wool production it has to be taken into consideration that *sardug* could have been the generic term for fabrics made of wool/cotton and linen without any further distinction. That would be close to the Dutch terminology in which the term *-fustein* is used both for wool and cotton/linen fabrics. Unlike the Danish term *sardug*, there is a clear differentiation between *sayfustein* (with wool) and *catoenfustein* (with cotton).²⁸ Besides this single reference, there is no further indication of a wool/linen and a cotton/linen cloth being described by only one term.

It could be shown that two known words can be added to the series of terms for fustian. In the case of *Sardok* the congruence is completely valid, while in the case of *sardug* it is limited. There is one example which also means wool/linen fabrics. That we have to keep in mind with regard to the fustian trade to Denmark, where an untraceable proportion of *sardug* originated from England. The reason for the whole terminological issue might be that even in production areas was no clear terminological differentiation between wool and cotton as von Stromer notes. The German term *Baumwolle* was used because of the similarity of cotton lint to sheep’s wool (in German usually only *Wolle*). In a guide for the municipal controllers of the quality of cotton (*Wollschauerordnung*) in Ulm, the raw material is first called

Baumwolle, then the first part disappears and only ‘woll’ and ‘wollschawer’ are mentioned. Regulations for the weavers of Ulm, including the fustian weavers, don’t mention cotton once.²⁹ The ambiguity of *Wolle* seems to be the origin of the presented terminology problem. For further illustration of the use of the terms *Sardok* and *sardug* both will be rendered as they are used in the sources.

III. Production

Medieval fustian production reached Germany via the production centres of the Lombardy. Cities like Milan, Piacenza or Cremona profited in raw material supply by Venetian and Genoese trade and produced fustians that were in high demand in Germany no later than 1300.³⁰ As in Italy, fustian production gained ground in Germany in established cloth production areas. The preconditions in Upper Germany were best in the so-called Swabian ‘linen district’ where knowledge of linen production was useful. In this area Augsburg, Ulm, Biberach, Memmingen, Nördlingen and Kaufbeuren became centres. Products of the surrounding areas involved in the production process were sold under the label of the centres of production. Other cities outside the ‘fustian district’ also tried to establish fustian production in the late 14th century. But they were not as successful as the cities of the Swabian ‘fustian district’.³¹ More successful was the launching of fustian production in Cologne which developed into an inherent part of the urban economy probably around the same time as in the Swabian centres.³² At the turn of the 15th century fustian was economically the most important article produced in Upper Swabia.³³ Thus Italian fustians were not required as much as before and their producers ran into difficulties in several places. Over the course of the 15th century, measures against German fustian were taken in Barcelona and Venice to protect domestic production.³⁴

The last known purchase of fustian done by German merchants

in Upper Italy is dated back by von Stromer to 1427/28.³⁵ This indicates a loss of importance of Italian fustian for the German market (or the loss of importance of the German market for Italian fustian), although Italian fustian became not completely irrelevant. If von Stromer's date really shows the very last purchase by German merchants, Italian traders still might have brought fustian across the Alps. In northern Germany, Milanese *Sardok* was bought decades afterwards.³⁶

In 1385 Augsburg produced approximately 12,000 pieces of fustian per year. The output increased fast in the following years to 87,000 pieces in 1410. In the following decades Augsburg's fustian production declined because of embargoes against Venice, the First Margrave War and the war against the Bavarian duke Louis IX. It didn't begin to recover again until the last quarter of the 15th century, when about 50,000–70,000 pieces of fustian were produced per year. The same amount was exported in the beginning of the 16th century, whereas 30,000–40,000 pieces of fustian were bleached and 20,000 raw or coloured. Around 1525 the amounts from the beginning 15th century were reached again.³⁷ A similar output can be supposed for Ulm, where in around 1560 approximately 100,000 pieces of fustian were produced.³⁸ Ulm fustian had its own term in English (*Holmes*) and Danish (*olmerdug*). A similar concept for Augsburg fustian is not known so that one could assume that Ulm fustian was more characteristic than Augsburg fustian.³⁹ The smaller cities/production centres in the 'fustian district' had smaller outputs, e.g. Nördlingen produced between 1407–1411 about 6,500–9,200 pieces per year,⁴⁰ which is close to the average output of Cologne at approximately 5,500 pieces. In the 1450s Cologne's output rose up to 9,000.⁴¹ For most of the producing cities, reliable estimations are rare or even non-existent. The given examples, Augsburg, Nördlingen and Cologne, are exceptions for which exact data are available based on sources such as excise accounts (*Akzisebücher*) or records of fees for the classification

(*Barchentschau*). The total output of Swabian fustian production is therefore not calculable and hardly comparable to Italy's. Italian production still might have outnumbered Swabian capacities, but its fabrics were probably exported to other areas, just as the German fabric was, and to areas where German fustian partly was outnumbered.⁴² The large textile producing areas of northwestern Europe were no catalyst, but imitators of production methods. In Bruges a fustian weaver was documented for the first time in 1513. The lead seal of one fustian sort that was produced here, shows on one side a 'B' for Bruges and on the other side a grape. Due to the possible confusion, merchants from Antwerpen that were trading with Swabian fustian tried to obtain a ban on the Bruges fustian but were unsuccessful.⁴³ Actually the grape was one of four symbols that gave information about the quality level for Swabian fustian on the lead seal. Weavers had to bring their product to municipal controllers, who classified the fustian by the levels ox, lion, grape or a letter. A similar system was in use in the Lombardy and other production centres with other symbols. Besides the strictly monitoring of the cloth also the raw materials, the bleaching and colouring processes were controlled, too.⁴⁴ The result was a standardised article with calculable quality. That merchants counted on this standard shows that bales were not opened before they were bought. This led to an unpleasant surprise in some cases when the content of a bale turned out to be something other than what was paid for.⁴⁵

IV. From South to North

a. The outgoing trade from southern Germany

The suggested terminology makes a new analysis of fustian trade possible and necessary. As already mentioned the map by von Stromer describes the distribution of fustian in Europe and implies a linear direction of trade from the production regions to the final destination. Thereby only one of several links between two places is shown at any time. This may be because it is not possible to

show different variations on a single printed map. These variations will be illustrated in the example of fustian trade from southern Germany to Denmark in the following chapter.

Of particular relevance for the distribution of fustian are the regional markets at the production places, e.g. the Augsburg Easter markets.⁴⁶ The outgoing trade from the Swabian ‘fustian district’ was dominated by Upper German merchants and trading societies. Such a one was the Augsburg Welser-Brun-society with its main activities on the route Venice-Augsburg-Frankfurt. And also the trade fairs of Ulm, Nuremberg and Nördlingen belonged to their trading posts. Johann Brun was a business operator in Nördlingen, where the society cooperated with other business operators, too. For the society Augsburg probably was the most important place for selling cotton and purchasing fustian. After the death of Johann Brun, Bartholomäus Welser broadened his society’s radius to central Germany (Leipzig) and the Lower Countries (Bergen op Zoom).⁴⁷ Low German merchants – like the Veckinchusen – bought their fustian in the production area, too.⁴⁸ Sivert Veckinchusen had probably planned to establish Augsburg as the most important distribution centre for the Venetian Trading Company (*Venedische Gesellschaft*).⁴⁹ With this society the Veckinchusen exported *Sartuch* with a value of several thousand ducats to Venice.⁵⁰ However, they bought fustian in Augsburg and brought it to Cologne and probably to the Low Countries, too.⁵¹ In addition to the destinations of outgoing trade from Augsburg were the Frankfurt trade fairs, Wrocław, and also partly Lübeck.⁵² Similar destinations might have been reached from Ulm.

The Regensburg merchant Runtinger delivered fustian to Prague, Vienna and Frankfurt (Oder) – mainly from Italy but particularly also Regensburg (one of the ‘second wave centres’). In one case Runtinger gave his servant Further the order to bring 210 Milanese and 10 other coloured pieces of fustian “to Frankfurt (Oder), Stettin or Stralsund or wherever he guesses he can sell it for the best possible price”.⁵³ Because Runtinger wrote in his

account book that he sent Further “to the sea” it is probable that the fustian was brought to the Baltic region.⁵⁴

Many trading centres like Nördlingen, Frankfurt am Main, Wrocław, Leipzig, Cologne and Bruges belonged to the destinations of Memmingen citizens as an example of the smaller production centres.⁵⁵

This selection of samples shows that fustian was traded straight from its production centres to many places where it was sold to consumers or other merchants, who continued the export. Cologne and several cities in the Low Countries in the west, Leipzig in central Germany and close to the production areas (respectively part of them) Frankfurt and Nördlingen were the first destinations for fustian trade. The Nördlingen trade fair became the second most important fairground after the Frankfurt trade fairs over the course of the 14th and 15th century. The characteristic of Nördlingen was the combination of production centre and fairground in one city. Cloth traders especially from Frankfurt, also from Bohemia, Middle Franconia and the Middle Rhine, were on site. With the establishment of the Leipzig trade fairs in the end of the 15th century the Nördlingen trade fair became less important.⁵⁶ Merchants from Nördlingen could be found outside of the trade fair in Cologne, Erfurt, Leipzig, Braunschweig, Antwerpen, and Bergen op Zoom, but their presence at the Frankfurt trade fairs seems to have been particularly important,⁵⁷ as Nördlingen was a major supplier to the Frankfurt fairs.

At the Frankfurt trade fairs almost every important cloth production area was represented. The first appearance of Swabian fustian is dated by Franz Bastian to the 1390s, but he estimated that it was present in the 1380s and lists several examples of Ulm, Augsburg and Nuremberg merchants that sold fustian in Frankfurt before 1400.⁵⁸ Due to its convenient geographical ‘central location’ (‘Mittellage’), goods from Lower and Upper Germany were exchanged at the Frankfurt trade fairs, too. So, they were more than an important hub for fustian.⁵⁹ The trade between

Frankfurt and Cologne was intensive. In 1476 there were approximately 43 merchants, one year later roughly 30 and in 1480 about 39 Cologne merchants, who visited the Frankfurt trade fairs, known by name. Franz Irsigler assumes that usually between 30 and 40 Cologne ‘companies’ were present at the fairs.⁶⁰

The agreement on the fees that should be paid (*Hausgeld*) functioned as a “basis for the Cologne merchants’ trade to the Frankfurt trade fairs”.⁶¹ For each *Fardel* of fustian six *Heller* should be paid.⁶² From Frankfurt to Cologne Gerhard van dem Viehof traded with Johann van Wipperfuerde. According to their accounts from the years 1437–1439 and 1441 they brought English cloth to Frankfurt and returned with fustian. In 1438 in Augsburg they brought fustian and metal goods.⁶³ From the same year comes a testimonial about Cologne citizens that obliged themselves to process a payment for *Sartuch* at the Frankfurt fair in the fall.⁶⁴

The second important destination reached from Frankfurt is Lübeck. Wilhelm Koppe mentions in his work on the Lübeck-Frankfurt merchants of the 14th century some examples of merchants that brought Italian as well Swabian fustian from Frankfurt straight to Lübeck.⁶⁵ In August 1410, Sivert Veckinchusen wrote to his brother Hildebrand that he had sent five bales of *Sardok* to his Lübeck partner Hans van Mynden, which he should sell to pay Sivert’s dues.⁶⁶ As Augsburg was important for the trade of the Veckinhusen family, these bales were probably from Swabia. Fustian from Ulm (unknown amount) and Augsburg (one brown, one grey, six white and one red) was bought by a member of the Nuremberg/Lübeck Mulich family – probably Paul Mulich – at the fast fair in 1495. The receiver is not named in the small account book, but the editor, Fritz Rörig, postulates that it was Paul’s brother Matthias, who is named at the end of the book as the investor.⁶⁷ Matthias Mulich, at this time still a Nuremberg citizen, developed close relations to the Danish crown as purveyor to the court and money lender. In 1498, he represented the Danish king in Lübeck in a judicial issue and

mediated in 1512 between Denmark and Lübeck.⁶⁸ There were not only Lübeck or Nuremberg merchants taking part in the fustian trade to Lübeck. In May 1459 the council of Frankfurt sent a complaint to Duke Frederik of Brunswick-Lüneburg who had robbed two wagons on their way to Heinrich Licher in Lübeck. The wagons had laden two Augsburg and one 'burer' (from Ravensburg?) *Fardel* from Agnes Wolff, the widow of a Frankfurt councilman, 24 pieces of Ulm fustian belonging to Hans Billingshusen from Göttingen and Nikolaus and Crafft Stalberg from Frankfurt, and two Augsburg *Fardel* that were Johann Kaldenborn's from Lübeck.⁶⁹

b. Fustian in Cologne, Lübeck and central Germany

The next steps in the trade of fustian towards the north were initiated from the hubs Cologne, Lübeck and partly Leipzig. Testimonials for fustian trade from Cologne to the Baltic area are in existence, but rare. In a complaint from Lübeck about Heinrich Bischof from Cologne, it is mentioned that Hans Gruner from Lübeck received two bales of *Sardok* for him.⁷⁰ Besides few direct contacts to Lübeck some merchants from Cologne appear in Denmark. Johann von Stralen, who was once mugged on his way back from Lübeck, also lost all his goods on his way back from Copenhagen in the area of Brielle in southern Holland.⁷¹ Fustian is not named in this case, but Johann von Stralen appears in another context with fustian and it is evidenced that he exported fustian to England.⁷² So it is absolutely possible that he exported fustian to Lübeck and Denmark, too. The main direction of the Cologne trade was towards the west, most interestingly for this paper's topic: the Low Countries. There were not only German merchants taking part in this trade. There are examples of Italian merchants, a servant of the Milanese citizen Franciscus dei Fossato, whose 13 bales of fustian were confiscated on his way to Bruges and many cases of Antwerpen merchants, who exported 32 *Fardel*, 154 bales and one pack of fustian together with Cologne merchants to Antwerpen

during 1488–1494.⁷³ On their way to the Low Countries the merchants were sometimes robbed in the areas of Jülich, Geldern and Lechenich. Several lists in which merchants claimed their goods back document that *Sartuch* was among the robbed goods.⁷⁴

Destinations for Gerhard van dem Viehof, as mentioned before, and his nephew Johann van Wipperfuerde were Bruges, Bergen op Zoom and Antwerpen.⁷⁵ Here, the city council had planned special rates for Hanseatic merchants in 1407; they were to pay six groat per bale of fustian.⁷⁶ As an outstanding example of fustian trade from Cologne to the Low Countries the Veckinchusens are again worth mentioning. In the letters from the Veckinchusens, about 16 *Fardel* of Augsburg fustian were sent from Sivert Veckinchusen to his brother in Bruges, half of ox quality, the other half of lion quality.⁷⁷ A somewhat larger amount was the approximately 23 *Fardel* that Reinhard Noiltgin sent from Cologne to Bruges, Antwerpen and Bergen.⁷⁸ That fustian was an inherent part of the Veckinchusen product range is also shown in several notes in Hildebrand Veckinchusen's account book.⁷⁹ In total the amount of shipped fustian might have been larger because these numbers are based only on published sources. A mention of the shipment of 60 *Fardel* supports the assumption that the preceding numbers are to be understood as minima.⁸⁰

In Cologne fustian was a staple good. Every importer had to pay one percent excise.⁸¹ Due to the excise registers, there are reliable numbers available about the quantity of fustian trade. Between 1452 and 1480, 16,630 *Fardel* were moved through Cologne, that means 573 *Fardel* on average per year.⁸² The partner of the Great Ravensburg Trading Society (*Große Ravensburger Handelsgesellschaft*) in Cologne, Johann van Beeck, traded 515 *Fardel* in the years from 1452 to 1459. This is the largest fustian exchange, which amounts to 14.6% of the total exchange in these years. He was followed by the Cologne affiliates of the Mendel and the Paumgartner Society.⁸³ This shows that Upper German, especially Nuremberg (the last two), trading societies belonged to

the leading fustian merchants. They were mainly interested in trade with fustian and metal goods to England and the return of English fabrics.⁸⁴

In Lübeck the Nuremberg merchants were involved in retail trade. The Lübeck retail traders complained in 1461 about them and merchants from Venice, Frankfurt am Main, Cologne, Erfurt and Schmalkalden. They were accused of trading pepper and *Sardok*, which only the Lübeck retail traders were permitted to do.⁸⁵ By doing this, the Nuremberg traders infringed upon a condition that was agreed upon one year earlier and which limited the Nuremberg merchants' detail trade to 'tant' that was produced in Nuremberg.⁸⁶ Even in 1353 guests were no longer allowed to sell 'Yresche' cloth, silk and *Sardok* in small amounts in Lübeck.⁸⁷ However, the Lübeck council had now decided in favor of its retail traders,⁸⁸ which Nuremberg did not want to accept. In a letter to Lübeck, the Nuremberg council referred to imperial privileges, long usage and threatened to constrict the trade of Lübeck merchants in Nuremberg at the same time⁸⁹ – without success.⁹⁰ The fact that Nuremberg probably was the only protesting city implies that these traders were especially concerned about the retail traders' complaint. The city's willingness to approve a conflict is probably reasoned by the importance of a lucrative additional business for its merchants. The problem for Nuremberg was the Lübeck retail traders' reluctance to lose their monopoly in their business. The complaint also provides information about the different mercantile communities that were importing *Sardok* and pepper. Besides the 'usual suspects' from Upper Germany, merchants from Cologne (another hint for the trade from Cologne to Lübeck), Venice and from Thuringia (Erfurt, Schmalkalden) took part in what was illegal business for all guests.

In central Germany around Erfurt in 1315, merchants already had to pay according to the *Erfurter Geleitstafel* charges per bale, piece and centner of fustian.⁹¹ Erfurt merchants bought fustian in the south and sold it in Thuringia.⁹² Obviously they exported it

further on to Lübeck. Contacts with Lower Germany definitely existed.⁹³ A hint of the fustian trade from Erfurt to Lübeck is the ownership of Erfurt money plus 14 bales of *Sardok* from the Pepersak-Kok trading society in 1366.⁹⁴ Through the upturn of its trade fairs in the second half of the 15th century Leipzig became more and more important for trade in central Germany.⁹⁵ Fustian was a frequently appearing good so it is to find in the scale regulations (*Waageordnung*),⁹⁶ in regulations concerning the loading and unloading of wagons and storage of goods in cellars⁹⁷ and regulations for the retail traders (*Kramerordnung*).⁹⁸ Upper German fustian reached Leipzig through, among others, the Nuremberg merchants.⁹⁹ Probably the transport in some cases continued to Lübeck. Lübeck was not only a destination for fustian trade on several occasions but also a distribution hub for the Baltic area. Cities like Stralsund,¹⁰⁰ Tallinn¹⁰¹ and Riga¹⁰² were destinations for outgoing trade, but they did not – with a few exceptions – lead to Denmark.

V. Fustian in Schleswig, Holstein and Denmark

To close the gap between Denmark on the one side and the Low Countries and northern Germany on the other, it is useful to state at first that fustian was generally sold north and northeast respectively of Lübeck and the Low Countries. The fustian listed in the accounts of the duke of Schleswig and Holstein and later the Danish king Frederick I were bought in the towns of Schleswig, Neumünster, Kiel and Tønder.¹⁰³ Apparently fustian was available not only at some special places but even nearly every town in Frederick's duchies. In most cases, fustian was bought from local retail traders, who most likely did not import it.¹⁰⁴ The situation was different with Claus Anckers, who was a townsman and temporary mayor of Haderslev. He earned his money mainly through ox trade and appears several times in the tax accounts. In 1491/92 he exported via Gottorf two larger flocks of horses, via Husum several goods, declared wine and cloth in 1496 and 1503

and exported together with 14 other Flensburg ox traders about 2,000 oxen probably in the context of the cattle drive from Kolding.¹⁰⁵ In one bill he is mentioned as the biggest seller to the ducal household with 76 oxen, while most of the sellers sold only one or two oxen.¹⁰⁶ Claus' brother and business partner, Jürgen, was active in ox trade as well and even had contact with the more southern Germany as the landgraves of Hesse belonged to his costumers.¹⁰⁷ A seller of white and other Ulm fustian together with silk and velvet was Dietrich Giese, who might be the Lübeck citizen of the same name.¹⁰⁸ This Lübeck citizen appears in the Gottorf customs invoice as an ox trader. He had permission to export salted ox meat and in 1546 declared 183 oxen and two years later 71 oxen.¹⁰⁹ Not named in the ducal accounts, but a similar case, is Michel Risenberg from Flensburg who traded among other goods oxen, horses and *sardug*. He lent money to Duke Frederick on the 'Kieler Umschlag' and paid 495 m.l. for the castle and the city of Kiel which were pledged. Similar to the example with Jürgen Anckers, there were Hessians who belonged to Michel Risenberg's customers.¹¹⁰ Three merchants who imported fustian to Schleswig have been discovered, all of them were ox traders, too. So, we can suppose that there is a link between fustian and ox trade. Further explanations of this combination will be presented in context with Queen Christina of Saxony's court accounts.

At the court of Frederick I, *Sardok* was mainly used for servants' clothing,¹¹¹ but also for a duvet for a highly ranked woman at the court.¹¹² At the court of the Danish Queen Christina of Saxony the use of fustian was similar. The queen herself got undergarments of *sardug*,¹¹³ but it was mostly paid to servants. In 1520 – the year with the highest consumption – the court accounts document a payment of approximately 109 ells to 25 servants.¹¹⁴ There must have been regular payments in terms of *sardug* which are probably not listed in the court accounts. Royal instructions from the second part of the 16th century show that *sardug* was an

inherent part of the salary of the palace guard and the gardener at the Castle Copenhagen, too.¹¹⁵ This could also be valid for Queen Christina's household in Odense.

Eleven *sardug* sellers are mentioned by name in the court accounts. Probably four of them were townsmen in Odense, another four were townsmen in Copenhagen and one in Lübeck.¹¹⁶ The origin of the remaining two could not be identified. The citizen of Lübeck, Michill Storm might have brought fustian from his hometown, as well as the mayor of Copenhagen, Hans Bogbinder, who sold German beer and had business contacts to the Nuremberg and later Lübeck citizen Matthias Mulich.¹¹⁷ Five of the other sellers were verifiably active in ox trade, some others probably were too. One of them is Herman Vale, a merchant from Odense. He once sold *sardug* which was used for servants and another time an amount of 16 ells in addition to e.g. rope and herring.¹¹⁸ Besides a broad product range he traded with oxen, which is documented in the tax accounts of Assens on Fyn and Haderslev. His business got into trouble, when the purchase of 2,200 oxen let him become bankrupt in 1538/39.¹¹⁹ Another Odense merchant who sold one *sardug* to the court was the temporary mayor of Odense, Hans Stryg.¹²⁰ One example from outside Queen Christina's accounts is the Lübeck citizen and resident in Odense merchant Henrik Kleysen, listed in the accounts of Næsbyhoved len. He appears as an ox trader in Ribe and Kolding.¹²¹ These examples together with the three aforementioned merchants from the duke of Schleswig and Holstein's accounts substantiate the suspicion that there was a link between fustian and ox trade, a link that is known for cloth trade to Denmark in general.¹²² The markets in and around Schleswig, especially Ribe, were the most important ones for buying and selling oxen, which were an important Danish export item.¹²³ They were either exported from there or directly to northern Germany and to the Low Countries, where the merchants had the possibility to buy fustian. Schleswig probably was the

main link between the Danish and the northern German and the Dutch market for fustian as for many other goods.¹²⁴

In addition to these possibilities, a customs tariff for the Amsterdam merchants in Husum, Flensburg and Schleswig from 1461 shows that fustian was shipped to Denmark from the Low Countries by Dutch merchants, where they had to pay four shillings per bale of fustian.¹²⁵ At this time fustian imported to Denmark must have been produced in the southern production centres in Italy and Germany. Later in the first half of the 16th century it is possible that in the Low Countries fustian produced in Bruges reached Denmark. Bruges was the only fustian producing city in the Low Countries, so the amount of produced cloth was probably very small in comparison with the Swabian centres' total output. Therefore the proportion of Dutch fustian in the trade to Denmark was relatively little by guess, but there is no evidence in the sources.

To this problem it needs to be added explicitly that it is sure that fustian reached Denmark from the Low Countries or Lübeck, but it is difficult to figure out from which direction the fustian reached Schleswig, Holstein and Denmark in individual cases. To point out the fustians origin, the merchants' possible business contacts and buying places it is necessary to analyze the origin of other goods in the merchants' product range. This requires far more space and doesn't deliver a completely reliable and satisfying answer, but could give some indications of the origin of the fustian. Therefore the given information about the fustian trade's last stage remains very general.¹²⁶

Another way for fustian to reach Denmark was peasant trade. When Erik of Pomerania prohibited the peasants of Zealand from trading in 1422 because of the citizens', merchants', nobility's and clergy's complaints, 'sarduch' was among other goods listed in his privilege.¹²⁷ Meeting points of Danish peasants and German merchants were the so called 'fiskelejer', that were established at the height of the Scanian Markets (also in the Limfjord region),

where merchants could buy cheaper herring directly from fishermen and sell their goods to consumers without paying dues.¹²⁸ Unfortunately, these contacts between merchants and peasants are rarely reflected in written sources, so the dimension of this trade is almost untraceable.

Besides the availability of published sources this could be another reason why this presentation gives a distorted picture in favor of Fyn and Schleswig. However, this picture might not even be appropriate if the mentioned courts had a force of attraction. There are several examples for the use of fustian in the eastern part of the Danish kingdom. The markets in Scania probably were a commercial centre for fustian trade. They were not only important for the trade of herring, but for cloth trade as well, so that fustian could easily have been amongst the goods traded there.¹²⁹ At least it is possible to state that fustian was available in Scania: The Malmö merchant Ditlev Enbeck sold *Sardok* to a member of the council in Lund and different inventories document the use of *sardug* in Malmö.¹³⁰ How the fustian reached the region, via the markets in Scania or perhaps via Zealand has not yet been possible to figure out. As an example of another region in the east of the Danish kingdom Aage Axelsen (Thott), member of the Danish Council of the Realm with most of his properties in Halland, received *Sardok* from a Stralsund merchant.¹³¹ His brother, Ivar Axelsen (Thott), who was governor of Gotland, used fustian for his servants, too.¹³² A region, which hardly can be analyzed, is Jutland, even if the use of fustian here is likely, because some lead seals from Augsburg were found in Northern Jutland.

VI. Conclusion

The scarce mention of the trade to Jutland and Scania shows the limitation of the edited sources used and the necessity of further research. The focus on the direct way to the Baltic and the North Sea region was a necessary simplification of European fustian

trade. In fact fustian did not flock straight towards the north. In every trading hub, fustian was distributed in many different directions and regions from which northern Europe was only one. So this paper presents a small part of the whole European fustian trade. It is almost the same with the trading good. Fustian was, for most merchants, not the only trading good but usually only one amongst others. That does not mean that there were no exceptions of merchants who specialised in trading fustian. These appear relatively frequently in Upper Germany close to the production places. In the north, the importance of fustian declines in comparison to other goods.

However, Denmark was, like every other European country, a destination for fustian trade in the Late Middle Ages. In different stations fustian reached Denmark via Frankfurt am Main, Cologne, the Low Countries, Lübeck, and the duchy of Schleswig. One reason for the fact that von Stromer's map did not show a Danish town was surely due to his focus on Central Europe and the biggest trading hubs outside that area. Another reason may have been the language barrier, which made deeper considerations about the terminology used for fustian necessary and led to the result that both the Middle Low German term *Sardok* and the Danish term *sardug* mean fustian.

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11. Cloth Production and Cloth Trade in Hanseatic Towns with Regional and Non-regional Products Reflected in Normative and Other Sources

Rudolf Holbach

I

In the *Donatus burgensium antiquus*, the oldest city book of Lüneburg, habits are described concerning the retail trade of pieces of cloth and the sale of cloth in general on St Michael's market around 1400.¹ The origin and status of the sellers, their position on the market place and their kind of products are mentioned. Due to this recording we get an impression of the catchment area of this market and of the varieties of sold textile products. It is told that 'In the first position those from Hamburg and Stade should stand and all those who cut out English cloth'. Although this group may only practise retail trade with ells of broad and narrow English textile products, they are allowed to sell all kinds of other cloth in full length. A second group consists of Lüneburg citizens and all those who want to cut coarse cloth. They get permission to do so with the exception of Rhenish and Hessian products. There is a third group consisting of urban weavers who are allowed to do retail trade with their own products only. The same counts for sellers from Brunswick, who may sell their own products in this way. In comparison, the clothiers

(Gewandschneider) of Lüneburg have the right of selling not only a single kind of cloth but a variety (*allerhands wands*).

Next to these specialised sellers there is another group from the town on the market place: these are obviously Hanseatic tradesmen, who import cloth by land or by sea (*over see und over sand*) from Flanders and can sell their cloth ell wise. In addition to that, other groups of tradesmen seem to have visited St. Michael's market regularly: Cloth retailers from Hamburg and Hannover are mentioned, who were allowed to sell some kinds of dyed but no cuttings of coarse white or grey cloth. The Rhenish, Hessian and Dutch providers could only sell ells of products from their own region. In the end the group of clothiers is listed again according to their positions, those of Uelzen are added by name together with those from Hamburg, Hannover and next to the Lüneburg citizens.

In all, this source seems to mirror what the title of my essay should indicate: trading with cloth on the Hanseatic urban markets is attended by several groups and was by no means only marked by imports of northwest European products. The latter ones were mentioned here of course, too. Flemish as well as English and Dutch products appear on the market of Lüneburg side by side showing the changing supply and demand in the distant trade with cloth in the late Middle Ages. However, crafts products from the region and from the local weaving played a role on the markets to some degree. In the following text further normative and other sources should be examined to verify this and to point out that with reference to the Hanseatic consumer it is not enough to only deal with the textile business over longer distances.

Indeed, it has long been known that several places of cloth production in the Hanse region of course had important trade relationships over long distances. Cologne can be mentioned as the main example, whose products were already widespread in the 13th century.² The Swiss historian Hektor Ammann also counts Dortmund, Göttingen, Brunswick and some other towns among the

medieval centres of export of textiles worth mentioning.³ However, a number of other places have not been acknowledged yet enough with regard to the diversity and the marketability of its cloths in long distance trade and in the regional economy. One of the possibilities to find out a little more about these locations of textiles is the examination of the rules that were issued for the process of production and for the trade on the urban markets.

II

Signs of a more than local significance of cloth production can be found in guild orders, especially mentioning varieties of cloth and containing detailed rules about quality of products, about inspection of labour results or about cloth seals. Only by these means a standardisation of products and their acceptance on the markets could be reached. The rules and the installment of an appropriate infrastructure are also hints that prove that the production must have been on a larger scale. Quality assuring measures were especially necessary when these rules were violated and complaints were lodged.

The conflicts between clothiers (Wandschneider), weavers and others and the order about how cloth had to be cut give further clues for estimating the role of Hanseatic cloth production and the trade with regional and non-regional products.⁴ So for example an order in Halberstadt in 1291 mentions a controversy (*discordia*) between the citizens of that town and of Quedlinburg because the weavers of Quedlinburg tried to cut their cloth there.⁵ The regulation of cloth sale in Greifswald 1504 refers to a high amount of English cloth that just as Scottish one was only allowed to be sold in units of 100, 50, or 25 pieces by citizens and guests;⁶ similar rules can be found in Hamburg in 1489 for guests' trade with textiles from Flanders, Brabant and the Netherlands as well as for the trade with cheaper English and Scottish products.⁷ Anyhow, the clothiers ('Gewandschneider') in Hanseatic and other lower German towns tried to protect and expand their privileges

concerning the detailed trade with cloth in many different ways. Partly this even went beyond the own place and reached into the surrounding region like in Stralsund in the year 1408.⁸ In contrast to that, the wool weavers were interested in selling their own products in any way possible, and occasionally they tried to increase their income by trading woven products of foreign producers. Due to the fact, as shown in Lüneburg, that also other local and foreign citizens appeared on annual fairs and in other places offering their products, there was considerable conflict potential and further regulations were necessary. The greater number of differing rules or compromises in favour of the clothiers (Gewandschneider) or the weavers, e.g., in Brandenburgian towns, verify how urgent this problem was.⁹ On the one hand the producers of local goods were privileged to a certain degree. On the other hand, sometimes any right concerning the cutting of cloth by weavers is tied to their membership in the merchants' guild or the producers seem to have been driven out of the market.¹⁰ Different rules were issued according to the place and the time of the offer. So in Hamburg the sale of cut white and grey sheets was forbidden, but on the free market the rules were more generous.¹¹ We have no possibility in our context to follow in detail the current development in the fight about market shares in single towns. Nevertheless, the availability of corresponding sources alone can be seen as a sign of the significance of cloth business and cloth trade in the Hanseatic area.

III

By examining normative sources from Hanseatic towns we find numerous quality assessments in weaving as well as hints referring to the participation in the trade of textiles. Apart from being able to present a complete picture, examples for different parts of Hanseatic landscapes have been collected here.

In the Lower Rhine region exists an inspection and a sealing of cloth at a very early stage. According to the order of Cologne, it

can be found in Deutz, a small suburb of Cologne, in the year 1230, which implies the same for Cologne itself.¹² Later on, in the Rhineland metropolis, the order of the brotherhood of the *Gewandsneder* from 1344 offers an overview of sold cloths and their lengths (see Fig. 11.1).¹³ Flemish products from Gent and Dendermonde and above all Brabantian ones made in Brussels, Leuven, Tienen, Diest and Mechelen are mentioned, reflecting the increased role of Brabant in the 14th century. Woven products from Maastricht and from Hasselt in the county of Loon as well as cloths from places close to Cologne, like Düren and Aachen, also appear in this order. Last but not least, a Hanseatic cloth measuring 43 ells, produced in Münster, is named there. The mention of different places of origin reflects the wide range of offers in Cologne to some extent.

Furthermore, in the Lower Rhine region, Emmerich and Neuss should be mentioned as centres of production. In Neuss a control exists in 1339/41, and in 1495 an inspection and sealing with leaden seals is entered into a binding after the weaving process.¹⁴ In the ending 15th century people in Neuss produced especially for Frankfurt trade fairs.¹⁵ The order for the Wesel woollen craft guild of 1452 consists of detailed rules and also mentions the sealing. At the same time, the trade of English and Dutch products in the town is allowed¹⁶ and apart from that, short, dyed sheets from the region, namely from Neuss, Roermond, Goch, Kalkar and Sonsbeck, were exported via the town¹⁷.

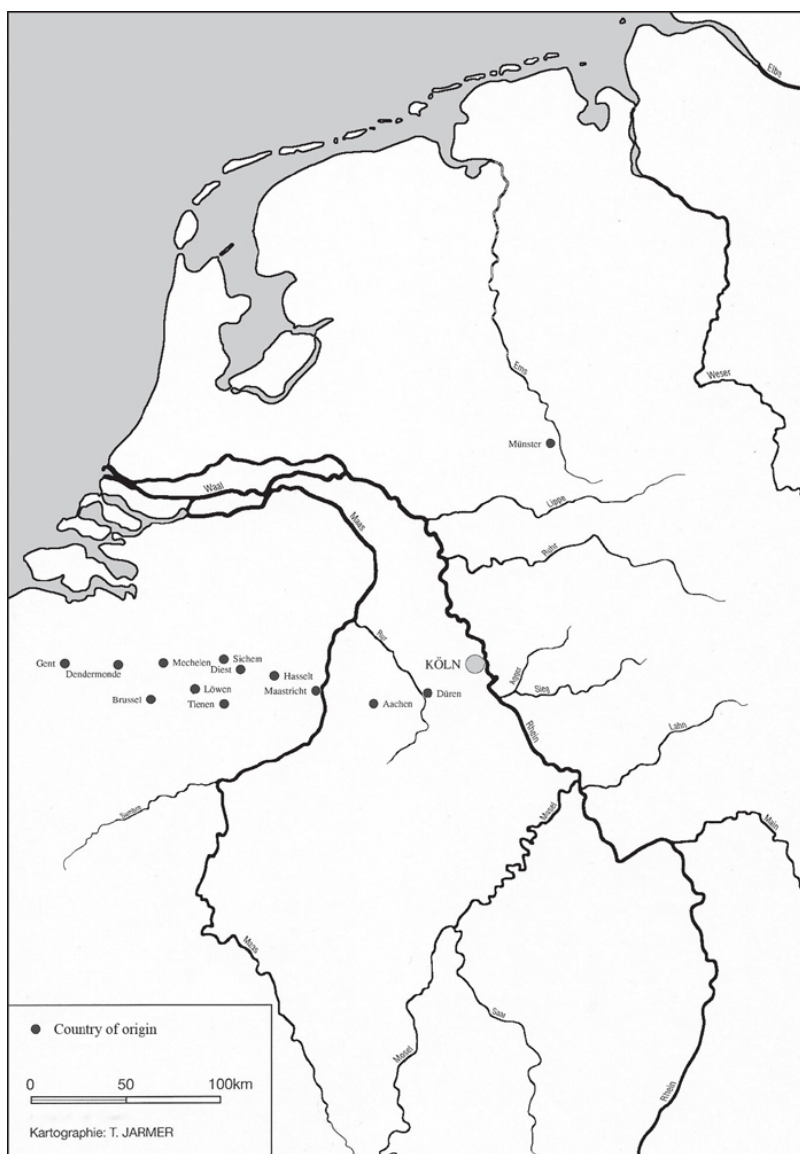


Fig. 11.1. Cloth sold by the clothiers of Cologne, 1344.

Between the River Rhine and the River Weser more sources referring to quality assessment and sealing can be found, e.g., in Wipperfürth¹⁸ in 1462 and in Essen¹⁹ in 1406, 1442 and 1515. The latter town made considerable profit in the 15th century.²⁰ The order of Dortmund of 1444 and 1472 includes numerous rules on the production and leaves the control and the sealing process to the foremen of the craft guild.²¹ The early modern order of Lünen, based on older statutes, or the agreements in Unna also suggest that a cloth production worth mentioning should have existed long before.²² An early proof of a considerable trade is the order of Soest of 1260, according to which cloth had already been *examinari et examinatos signari*.²³ The rules from the time of 1300 determined the quality of three known varieties.²⁴ The guild letter of the wool weavers from Höxter in 1333 intended that cloth had to be seen and examined (*laken beseen unde gheproft*),²⁵ and also in Minden, at the latest in the 15th century, the same can be found. Here in 1493 the wool weavers were forbidden to cut out cloth and were dependent on the merchants anyway.²⁶

Considering the cutting of cloth, the weavers of Lemgo appear at an even earlier date. They were not allowed to sell their products in ells in 1253, according to the rules for their colleagues in Lippstadt.²⁷ In 1309 the earl of Ravensberg linked a corresponding trade for Bielefeld to a renunciation of the production as a *lanifex*.²⁸ Taking further proof and indications into account for a wider spread important weaving business in the Rhenian-Westphalian region, e.g., for Düsseldorf, Coesfeld, Hamm, Hattingen, Schwerte or Münster,²⁹ the area between Rhine and Weser on the whole reveals a dense picture of cloth producing places in the Middle Ages, among to which Osnabrück, situated further north, can also be counted. Here cloth inspection and sealing existed in 1345, and in 1471 the town intentionally tried, with the help of new quality regulations, controlling and sealing to mark off their products from poor quality ones produced in Telgte,

Schüttorf, Rheine and Buer which had been sold as products made in Osnabrück before.³⁰ The excise tariff of 1488 shows again that in the town cloth from the surrounding area like from Melle, Buer, Iburg and Quakenbrück was brought in, another tariff of the 15th century reflects the import of Westfalian, Dutch and other textiles.³¹

IV

In the eastern part of Lower Saxony especially the weaving of Brunswick was of importance, whose cloth makers of different parts of town were given the right of selling and buying their own cloth in the 13th century.³² The products were, similar to those made in Hildesheim,³³ not of very high quality. This cannot only be deduced from the low prices, e.g., shown in the account book of Vicko von Geldersen (3 lb, 5s 6d³⁴), but also from an ordinance given to the merchants of Goslar 1334 not to cut worse cloth than Brunswick one.³⁵ About other cloth on the Brunswick market and the lengths of the products we get information from the 'Gewandschneiderbuch' from the old town centre, written in 1401. There we find a list reaching from long cloth of Gent, measuring 50 ells, from further Flemish products of Bruges, Ypres, Aardenburg, Kortrijk, Comen, Wervik and Poperinge and Rhenian cloth from Aachen to products of Brunswick itself consisting of 30 ells and that from Steinfurt with a length of 28 ells.³⁶

In 1449 in Hannover the town government did not grant the wool weavers the cutting of textiles in principle, but allowed them after all to sell their own grey and white cloth ellwise on four days in the year from April 29 to May 2. At the same time, the merchants were told to take care of the quality of the parts they cut out of green, grey and white Hanoverian cloth and were explicitly forbidden to order cloth of cheap quality outside the town and to come to agreements among each other not to buy cloth from the urban wool weavers.³⁷ This arrangement was made to consider the economic interests of both groups and to limit

commercial and putting-out activities in the surrounding area at the urban craftsmen's disadvantage.

In Hildesheim, that should be mentioned here apart from the less important places like Goslar³⁸ or Quedlinburg,³⁹ the producers of cloth in 1346 still had to explain their renunciation of cutting.⁴⁰ But in 1447 a compromise with the group of clothiers⁴¹ was made⁴² that allowed the weavers to cut out grey and half black cloth of Hildesheim produced within the toll border and in the new part of the town and having appropriate value. Nevertheless, the permission was only valid if the craftsmen did not deal with foreign cloth.⁴³ This is a clear proof for the fact that some members of the guild worked as cloth merchants. The regulations for wool weavers from the old city centre around 1450, reaching back to complaints of merchants on the inadequate quality of the products made *in situ*, manifest the role of cloth made in Hildesheim as a trade product.⁴⁴

In another important place of cloth production, in Göttingen, imputations to the cloth producers can be found as well. The sale of textiles, that were too short, to the Russians was the reason for a letter written by the council couriers (Ratssendeboten) of the Hanseatic towns in August 1423 to the town of Göttingen, in which they pronounced that their craftsmen should make the cloth for the long distance trade in the same way as usual (*na alder wise*).⁴⁵ At the meeting of the Hanse in Lübeck in July a corresponding decision had been made because of the shortness of Flemish cloth but also because of the coarse products from Hanseatic towns. That resolution should be sent especially to Magdeburg and Stendal.⁴⁶ All these examples show the urban and Hanseatic worries about the quality of products in general and at the same time the importance of their own Hanseatic production. Smaller towns in the area intended to protect the weaving in the same way. A council resolution made in 1434 in Duderstadt, situated close to Göttingen, included that all cloths had to be presented in the town council hall where they should also get their

seals.⁴⁷

Especially concerning the trade with parts of cloth, fraud attempts seem to have happened quite often. This can be deduced from a regulation from Göttingen of 1406. It refers to the fact that the exact origin of products must be given:

that any cloth should be cut the way it is and that it should be given the name of the town where it was produced, which means a Hessian cloth as a Hessian, a cloth from Aachen as a cloth from Aachen, a cloth from Gent as a cloth from Gent, a cloth from Göttingen as a cloth from Göttingen.

and so on.⁴⁸ The order for the clothiers in Lübeck in 1410 consisted of similar regulations. Each cloth should be sold *by synen namen*, which means giving origin and quality of the product. The source refers to Rhenian, Hessian and *Debellyn* textiles.⁴⁹ Against the concealment of the true origin, an order was made in Hamburg after 1469: cloth should only be cut starting at the unsealed end.⁵⁰

V

Other well known centres of the textile sector in the southern Hanse region should only be mentioned in a few brief words. In the woad growing region of Thüringen the cloth-makers of Mühlhausen⁵¹ were already given regulations in 1231.⁵² More exact regulations concerning the length and width of the products and their sealing were implemented in the 14th century.⁵³ In Erfurt the production of differently coloured cloth is described already in 1288.⁵⁴ Another centre of cloth production was Nordhausen.⁵⁵

From the Markgrafschaft Brandenburg, where also the dye called '*Schirwitz*' was produced from a scale insect living on the roots of the so-called '*Knauel*' and was exported as far as to Genoa and Florence,⁵⁶ proof of considerable cloth production in bigger and smaller towns belonging or attributed to the Hanse was found in several laws regulating commercial and artisanal business. This is valid for Stendal and Berlin in the 13th century, where a quality

inspection had already been installed⁵⁷ and also natural coloured and dyed cloths are mentioned in 1295.⁵⁸ Similar conditions are given in the towns of Brandenburg in 1422, of Tangermünde in 1506⁵⁹ or of Pritzwalk in 1507.⁶⁰ From a privilege of cutting their own cloths for the wool weavers of Perleberg of 1459 we are told that they produced white and grey textiles and were allowed to sell it on all fairs of the earldom by the ell.⁶¹ The high significance of cloth production in Stendal is proved in a very early quality assuring order from 1251 and further standing rules.⁶² This can also be explained by the fact that many people here were concerned with the textile production⁶³ and in 1301 quality inspection and brands as well as different colours for the sheets like red, brown, green, blue, yellow, black, white and grey were listed.⁶⁴

The number of regulations concerning the cutting of cloths also points to a greater importance of the textile sector. They reach from special privileges for the clothiers with a strong separation of production and trade like in Stendal in 1231,⁶⁵ in Salzwedel in 1233,⁶⁶ in Kyritz in 1245,⁶⁷ in the later 13th century also in Frankfurt/Oder,⁶⁸ in Perleberg in 1303,⁶⁹ in Havelberg in 1310⁷⁰ and in the new town of Brandenburg in 1335⁷¹ to agreements with limited licences for the weavers.⁷² So in Stendal, at least in the late Middle Ages, cloth producers were allowed to cut out their own textiles on particular fairs in the surrounding area, like in Tangermünde, Perleberg or Havelberg and even offer them on a particular spot on the outskirts of Stendal apart from urban foreign products.⁷³

VI

Further up in the north, the role of the Lüneburg⁷⁴ cloth trade has already been mentioned. The order of the wool craft of 1432 conveys a diversity of textile products. A variety of different kinds of cloth is listed, namely small ones and ordinary ones brown and grey (or blue) cloths as well as short ones with green borders; in

addition to that, there were white and unbleached woven goods. At the same time, this order includes regulations concerning the quality and the respective measures.⁷⁵ In 1482 the demand of different masters of the craft to increase the permitted maximum number of cloths from 60 to 100 per year was successful and points to a higher social and economic differentiation in the cloth industry up to entrepreneurial activities, while others were not even able to produce the quantity that had been allowed so far.⁷⁶ The roll of the wool weavers of nearby Uelzen from 1443 intended the use of warp yarn from Magdeburg or Stendal, which can also be seen as a proof of its quality. In Uelzen they also distinguished between cloths with red and green borders.⁷⁷ The order of the Lübeck wool weavers of 1477 refers to the production of different kinds of cloth as well: naturally grey textiles produced from wool of the Lüneburg Heath, brown cloths made from white and black wool from Stralsund and white woven goods for which the warp yarn (*schaerwarp*) was imported from Magdeburg and Brunswick. At last there was a cheap product (*rinklaken*) made of local wool.⁷⁸ A greater fame and marketability of the Lübeck sheets can be deduced from the attempt of the weavers of nearby Mölln to imitate the Lübeck cloth with a red border, which the council of the Hansetown tried to stop in 1462.⁷⁹ On the other hand, in the order of 1477 the Lübeck weavers were forbidden to buy cloth from Wismar or Mölln to trade with, which leads to the conclusion that those also got into the mercantile circulation via Lübeck.⁸⁰

Apart from that, at the Baltic Sea the statutes of Rostock for wool weavers from 1362 contain information about the quality and measures of the cloths that should be 32 ells long and two ells wide, and mentions inspection and sealing.⁸¹ In Wismar in 1387 quality regulations were issued and in an additional note of 1417 the sealing of the broad cloth is mentioned.⁸² Indeed, there were complaints uttered at the assembly of municipalities in Wolmar in Latvia in 1410 about the *groven Wendeschen lakene*, obviously referring to cloths produced in towns like Lübeck, Wismar or

Rostock.⁸³

Not least of all there are also hints referring to the existence of marketable cloth of several kinds and their sealing in Prussia.⁸⁴ So the order of Kulm from 1379 includes regulations concerning the warping frame and a passage that says that each town should attach seals to their woven goods (*verlozen mit einem blie*).⁸⁵ The order of the wool weavers of the assembly (Tagfahrt) of Marienburg of 1402 again mentions measures and makes quality inspection and the long-established urban sealing compulsory.⁸⁶ At a corporative assembly in the year 1419 the keeping of length, width and quality and the necessity of the long-known sealing were again inculcated.⁸⁷ However, the ordinary grey cloths were also imperfect after this time, as e.g. proved in 1427 (*gebrechen*).⁸⁸ Apart from that, craft and trade people had to struggle with the import of unsealed products imported from Poland.⁸⁹

VII

In all, the normative sources on cloth trade and cloth production used here lead to a varied picture of the economic activities in the Hanseatic area.⁹⁰ However, it should and might be completed by further references that can only be presented here in a few words and in so far as they contain information about Hanseatic cloth itself or about the relationship of regional and supra-regional trade. In any case, this can be found partly in civil disputes⁹¹ and in business records like letters⁹² and accounting. But here the differing orientation and specialization of businesses and merchants and the kind of booking have to be considered, partly mentioning grey or white cloth without its location. In the edited trading books of Johann Tölner, the Wittenborg or Veckinchusen different woven goods appear, above all those from Flanders and Brabant, but Hanseatic products cannot be identified there exactly. In the accounting book of Vicko von Geldersen textiles from Brunswick are mentioned once.⁹³ In contrast, the well known bookkeeping of a clothier from Lübeck from the ending 13th

century shows apart from Flemish products the import of Rhenian-Westphalian cloth from Cologne, Soest and the county of Mark and at the same time, with nearly forty entries, the importance of local grey, white or striped products from Lübeck.⁹⁴

As imported goods partly had to undergo a further process of production in the Hanseatic towns occasional wage tariffs give clues leading to an evaluation of the trade: in Krakow in 1364 shearing tariffs were fixed for Flemish cloths from Bruges and Ypres, for Florentine products, for Brabantian goods from Mechelen, Herentals and Vilvoorde, for English cloth and for so-called cloth from the country (*landtuch*), so that we get information about the coexistence of high quality imports and cheap cloth from the region.⁹⁵ The wage rates for cloth shearers from Cologne in 1445 show, like the earlier mentioned order for the clothiers, imports from the Flemish and Brabantian region, from the River Maas, but also from the surrounding area (see [Fig 11.2](#)).

Other tariffs like customs tariffs and customs bills are also extremely important sources in our context especially concerning the relations of the value of goods. In Brunswick in 1320/30 the following taxes were intended for intermediate dealers: 4d for cloths from Gent, 3d for those from Poperinge, for those from Maastricht and Ecques so many pence as the price was in mark, for local products from the district Hagen only 1d.⁹⁶ In the Erfurt conduct tariff (*Geleittafel*) from 1315 woven goods from Soest are mentioned for which here as well as for local ones or cloths from Nuremberg 6d were put up as tax, while for cloth from Gent 1s but for one from Aachen 10d had to be paid.⁹⁷ In the Lübeck⁹⁸ pound-toll registers for 1492 a price of 24 lb for 11 cloths from Mühlhausen, 16 lb for 4 cloths from Rostock and 48 lb for 10 cloths from Wismar can be found. This leads to the conclusion that the goods from Rostock and Wismar were with 4 marks per piece of about double the value of the goods from Mühlhausen.⁹⁹

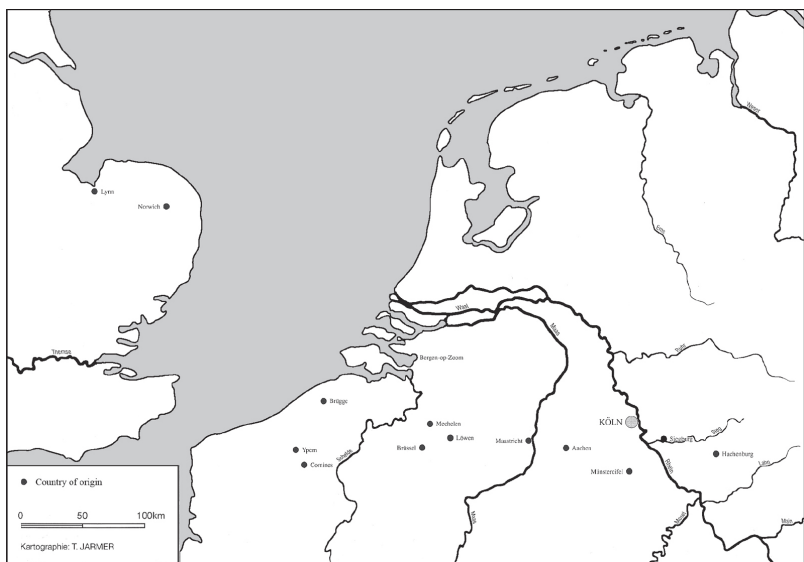


Fig. 11.2. Foreign cloth in Cologne (Wages of shearers, 1445).

Excise- and customs tariffs¹⁰⁰ give us – as these examples show – above all information about the transit, the place of production and the destination of single woven goods,¹⁰¹ e.g., also about the import of cloth from Westphalia and the Netherlands to Osnabrück in the 15th century.¹⁰² Among the cloths transported via Lübeck to Mecklenburg and Pomerania between 1492 and 1496 are Hanseatic products from Wesel, Osnabrück, Rostock or Mühlhausen.¹⁰³ Goods from Dutch Hansetowns like Deventer, Harderwijk and Kampen were exported to Gdansk,¹⁰⁴ goods from the same places and also cloths from Dortmund, Lübeck¹⁰⁵, Rostock and Wismar were sent to Riga.¹⁰⁶ A toll roll from Lübeck includes textiles made in the neighbouring places Hamburg, Mölln, Ratzeburg and Wittstock.¹⁰⁷ However, in the pound-toll accounts only the ships and goods coming in by the sea route were recorded and only fragmentary information about textile products from the surrounding area and the hinterland can be expected. The pound-toll book from Gdańsk of 1409 names a number of northwest European goods from Flanders, Brabant, Holland and England besides some other goods, but only Hanseatic cloth from Stralsund and Toruń.¹⁰⁸

VIII

Woven Hanseatic goods were used in different contexts, appear, e.g., in wills¹⁰⁹ and as objects of donations.¹¹⁰ So Matthias Buerdeer in 1406 ordered the purchase of 12 cloths made in Wismar to be distributed among the poor of Bergen¹¹¹ and in other testaments from Bergen cloths from Stendal, Mühlhausen or Herford are mentioned.¹¹² According to the testament of the citizen of Reval Evert van der Linden from 1455, four cloths produced in Mühlhausen should be given away for clothes for young monks.¹¹³ In 1504 Hans Resze donated besides woven goods from the Dutch Naarden to different churches, hospitals and poor virgins three grey cloths from Lübeck and one cloth from

Uelzen to clothe the poor.¹¹⁴ According to a foundation the regulations (*'Schrage'*) of the Table Guild in Riga in 1425 ordered *van Herman Lensziikes husvrouwen wegen* to cut out two cloths from Rostock on Tuesday after St Michael's day and to make clothes for the poor of it.¹¹⁵

Hanseatic textiles also appear in urban expenses. In the bills of Munster from 1447/48 and 1458 besides cloths from Leiden and Amsterdam especially those from the Netherland Hansetowns Roermond and Zaltbommel, but also from Wesel are mentioned.¹¹⁶ The account book of the finance department of Reval records grey cloths from Lübeck in 1436¹¹⁷ and the registry of the financial department of Riga has listed 10 Mk for two cloths from Rostock in connection with a journey to Smolensk in 1469/70.¹¹⁸ The town expenses of Hildesheim show that in the late Middle Ages besides local products especially grey cloth from Brunswick played a role and was used in 1403 and later on to provide town employees and other people with.¹¹⁹

Finally, an important, but on the whole not yet really exploited group of sources for the consumption of Hanseatic woollen cloth are accounts of ecclesiastical institutions. Expense registers of the monastery of Ilsenburg in the Harz region, for example, include a number of textile purchases in Wernigerode and the surrounding area¹²⁰ between 1481 and 1547. Among them there are so-called Arras-cloths and woven goods from England (*Lundesche*) and from Holland (Leiden, Haag), from Eisenach in Thuringia, from Zwickau in Saxony as well as local textiles from Wernigerode itself.¹²¹ But there are also products from Hanseatic towns recorded: From 1484 to 1540 several times money was spent on cloth from Brunswick, Stendal, from the Dutch Hansetown Harderwijk, from Goslar, Göttingen and Hildesheim.¹²² The relevant examples could even be multiplied. The monastery of Diesdorf in the Altmark, for example, bought in the time around 1480 Flemish and Dutch products, among those also cloths from the Hansetowns Kampen, Deventer and Harderwijk, English, Saxon and Bohemian woven

goods, but also white cloths from Stendal and so-called Catherine cloths from Salzwedel.¹²³ In the account books of the Lübeck Holy Ghost Hospital in 1472 the purchase of one ell of grey and one ell of white cloth from Stendal is recorded at the cost of 3s 4d each.¹²⁴

IX

In summary it can be stated that the production of cloth in the Hanse region itself should not be underestimated. Certainly there is a predominance of northwest European textiles¹²⁵ and regional goods seem, despite their role in the long distance trade, to be less desired. Especially more important merchants like the Veckinchusen did hardly or not at all trade with local products. It is incontestable that there were times of crisis in the weaving of Hanseatic towns that were increased by problems of the acquisition of wool¹²⁶ in different places in the 16th century.¹²⁷ Apart from that, means of the advancement of crafts like in Duisburg,¹²⁸ Soest,¹²⁹ Göttingen,¹³⁰ Goslar¹³¹ and also in Hamburg¹³² in the 15th century were only partly successful.

In spite of that, there was such a big division of labour in the sector of textile production, on the consumers' side such a differing demand and last but not least such a hierarchical structure of the markets that also the products from the Hansetowns found their buyers, particularly in the north-west European provinces itself, where they were used for the provision of the poor local population.¹³³ At the same time, in a period of a so-called 'bound economy' towns tried by means of market regulation to balance out the economic interests of different players with a coexistence of foreign and local products and providers¹³⁴ and especially to protect the wealth of their own citizens, to whom besides specialised and privileged cloth merchants also master craftsmen belonged. As an answer to the differing demands for the Hanseatic consumers as well as for the clients on far away markets, from this complicated market and

production structure a highly diversified and graduated range of goods resulted, reaching from expensive cloths to simple woven goods of different origins.

In the second half of the 16th century Hanseatic cloth was still important in the trade, which is shown e.g., in the account books of the Hoep firm from Hamburg, in which, apart from English and other cloths, also textiles from Hamburg,¹³⁵ from Hildesheim, Magdeburg, Mühlhausen, Lüneburg and Buxtehude are mentioned.¹³⁶ Besides, a further processing of English cloth on the continent had led to a boom of the corresponding craft branches in Hamburg¹³⁷ or Emden¹³⁸ in the 16th century. Conversely the English bought up raw materials and finished woven goods in small German towns and in the country.¹³⁹ Because of this economic competition especially in the cloth production and cloth trade on the continent and in England a violent Hanseatic-English controversy arose, culminating in by no means flattering wording. So in 1579 the merchants of the Hanseatic steelyard in London attributed a special nature and character (*natur und eigenschaft*) to the English nation: The English would always want more and more, the more someone else makes concessions to them. Later on Georg Liseman as an ambassador of the Hanse implied in a letter to Dr Sudermann in 1585 that the English would suck the juice out of the Germans.¹⁴⁰ Conversely, Richard Clough (d. 1570), an agent of Queen Elizabeth I, had spoken of the German jealousy, impudence and mercilessness and had called the citizens of Hamburg *a kind of people rude*, differing completely from the British way of life.¹⁴¹

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12. Cloth in the Large Cities of Medieval Poland: Production and Trade

Jerzy Maik

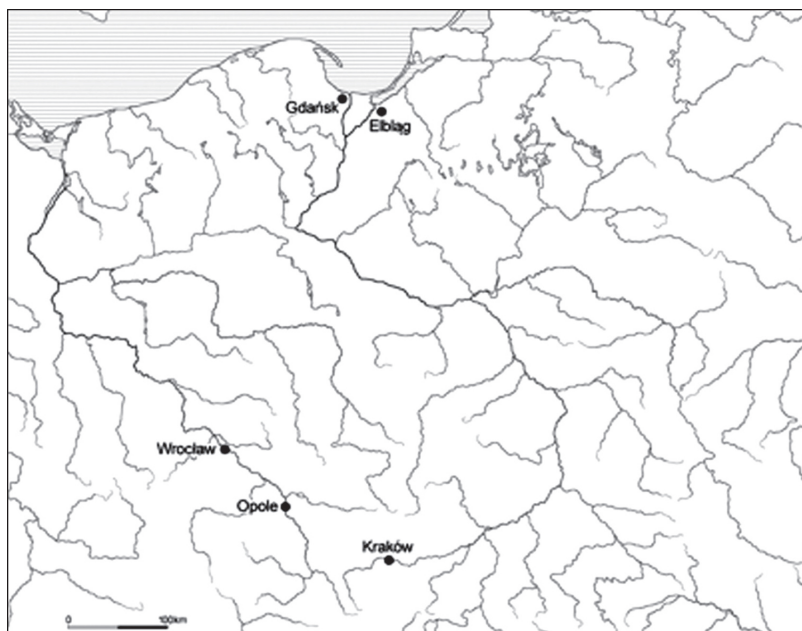
After World War II, a considerable rise in the interest in economic issues was observed on the part of archaeologists and historians dealing with the Middle Ages in Poland. This was, among other things, connected with the forthcoming 1000th anniversary of the Polish state and adoption of Christianity. Unprecedented large-scale archaeological research was conducted, resulting in a great number of finds connected with ancient handicrafts, due to which these handicrafts could be seen from a new, different perspective. It should also be noted that in the 1950s and the 1960s archaeologists were interested in early medieval relics, dating back to before the 14th century. Investigations into the Late Middle Ages and modern times were the domain of historians at that time.

The term 'Medieval Poland' is not an unambiguous term, as border changes and fragmentation of the country must be taken into consideration. In the Middle Ages, towns such as Wrocław, Opole, Gdańsk or Elbląg remained within the borders of the Kingdom of Poland or Polish duchies only periodically. At times, they also belonged to the Kingdom of Bohemia, the German Empire and the Teutonic state.¹ For this reason, in the present paper, the term is used to refer only to the territory bordering the Baltic Sea to the north, the Sudetes and the Carpathians to the south, the Bug River to the east and the Oder and the Lusatian

Neisse to the west, which practically corresponds to the territory of modern-day Poland (Fig. 12.1).

The site excavations conducted in Gdańsk, Pomerania, and Opole, Silesia, were particularly important for the study of the history of early medieval textile production in Poland. In the 10th–13th centuries, the two towns were important early urban centres, where both handicraft and trade flourished. During the excavations conducted in these towns at the end of the 1940s and in the beginning of the 1950s, a few hundred textile fragments, mostly wool fabrics, as well as numerous spinning and weaving tools, including distaffs, spindles, whorls and fragments of foot-treadle operated looms, were discovered.

In Opole, the first archaeological works were carried out by German archaeologists in the 1930s. A few textile fragments and the remains of a foot-treadle operated loom, discovered *in situ*, in a hut dated to the second half of the 12th and the beginning of the 13th centuries, come from this excavation. These relics, described in the publication by G. Sage, disappeared during World War II.²



*Figure 12.1. Location of the towns from which come the fabrics discussed in this chapter
(drawn by E. Wtorkiewicz-Marosik).*

The textiles found during post-war excavations were examined by Eng. J. Stanclik in the 1950s and subsequently by Dr A. Nahlik in 1958. The results are available in the form of typewritten copies.³ As the excavation conducted in Opole was later continued, the finds discovered in the years 1958–1978 were then published by the author of the present paper. The results of my research and a summary of the research conducted by my predecessors were also presented in my publication in 1991.⁴ The archaeological textiles coming from the excavation in Opole all date back to the period between the end of the 10th and the mid-13th centuries.

A collection of archaeological textiles coming from early medieval Gdańsk were found in an excavation carried out on the site of a handicraft and fishing settlement. The finds were examined by J. Kamińska, an archaeologist, and A. Nahlik, a textile technologist. As a result a book was published dealing with textile production in Gdańsk in the period between the end of the 10th and the close of the 13th centuries.⁵

Fabrics were also discovered in other parts of Gdańsk – the ducal town and the harbour. The finds were examined by the author of the present paper and the analysis results presented in the publication dealing with textiles coming from Pomerania, which summarises my research into ancient and medieval Pomeranian textile production, which I had conducted for over a dozen years.⁶

The archaeological exploration recently carried out by the Archaeological Museum in Gdańsk in the direct vicinity of the excavation from the 1940s and the 1950s is also worth mentioning here. The dendrochronological analysis done based on the material provided by this exploration has permitted revision of the previous chronological assumptions.⁷ To put it short, based on the dendrochronological tests, the oldest settlement stratum, originally dated to the close of the 10th century, has been found to date back

to the last decade of the 11th century, and the youngest stratum, originally thought to date back to the years 1295–1308, has now been dated to the period between the fourth quarter and the turn of the 12th century. The new dating of the strata in question, significantly affecting the chronology of some of the textile finds, particularly the remains of the weaving loom, has been applied in the present paper.

At the turn of the 1940s, the aforementioned archaeological exploration was simultaneously accompanied by historical studies of textile production in medieval Poland. The studies were part of a wider exploration project regarding the history of Polish handicraft initiated by M. Małowist.⁸ The fundamental monograph written by this author about the leading, mainly Flemish, cloth centres of Western Europe should be mentioned here in the first place.⁹ Although the book does not deal with Polish cloth production directly, the methods employed in contemporary Poland must have developed under the influence of Western European cloth production and for this reason no studies into the history of broadcloth production in Poland are possible without the knowledge of M. Małowist's publication.

Among the basic works devoted to the history of cloth production in medieval and early modern Poland, the following works deserve special attention: the book by A. Mączak about cloth production in Greater Poland in the 14th–17th centuries (1955), the publication by M. Bogucka dealing with textile handicrafts in Gdańsk in the period between the 16th and the first half of the 17th centuries (1956), the work by J. Wyrozumski devoted to weaving in Lesser Poland in the Late Middle Ages (1972), the publication by W. Sobisiak about rural textile production in Greater Poland from the Middle Ages to the present day (1968), and I. Turnau's study dealing with textile production in 18th-century Poland (1962). Rural cloth production in the Middle Ages was also discussed by H. Samsonowicz in his book about rural handicraft in 14th and 17th century Poland (1954).

As there are no larger publications dealing with textile production in Silesia written by Polish historians, D. Poppe's article about the exportation of so-called Polish cloth, which the author identifies with Silesian cloth (1988), and the typewritten work by A. Schodrok from Freiburg devoted to medieval cloth production and trade in Silesia should be mentioned here (1948).

Archaeological exploration of historic towns intensified again after the political transformations which swept across Poland in 1989, when Poland's economy recorded exceptionally rapid growth accompanied by the reconstruction and revitalisation of its urban historic infrastructure. Archaeological excavations are often rescue excavations and are still in progress in such cities as Gdańsk, Elbląg, Kołobrzeg, Szczecin, Wrocław or Kraków. During present digs, however, all the strata, from the oldest to the most recent ones, are examined and the finds obtained are treated as equally important regardless of their dating.¹⁰

I will attempt to discuss cloth production in large, early urban centres in early medieval Poland based on the analysis of finds discovered in Gdańsk and Opole, where about a total of a thousand fragments of wool fabrics, dating from the period between the end of the 10th and the close of the 12th centuries, were found (Figs 12.2–12.4). The characteristic thing is that among the textiles discovered, 2/1 and 2/2 twills considerably outnumber fabrics made in plain weave and other types of weave. Besides, among the fabrics coming from Opole, 2/1 twills were frequently discovered in the oldest archaeological strata to be later displaced by 2/2 twills. In Gdańsk, on the other hand, both the weaves seem to have been equally popular throughout the 11th and the 12th centuries. It may only be noted that tabbies were uncommon in both Gdańsk and Opole, where they constituted 2–20% of the finds. Similarly, fabrics made in 2/2 broken twill and other types of broken twill were hardly ever found. The interesting thing is that no fabrics made in satin were discovered (Figs 12.5–12.6).

The above proportion of weaves differs from the proportion of weaves found in older collections of archaeological textiles, coming from early medieval Poland: Santok (7th/8th–first half of the 9th centuries) and Wolin (9th–10th centuries), where 2/2 twills and 2/2 broken twills were the most numerous weaves and 2/1 twills were practically non-existent. I previously discussed this phenomenon in my paper *The Influence of Hanseatic Trade on Textile Production in Medieval Poland*, delivered in Copenhagen in 2006, but I wish to emphasise this fact again here.¹¹

It remains unclear what type of loom was in use in Poland in the 7th–10th centuries. Most probably, the warp-weighted loom was the most common. However, no weaving weights have been discovered in the contemporary archaeological material. Moreover, starting borders are hardly ever found. Therefore, it is difficult to prove that the warp-weighted loom was in widespread use at that time. Similarly, no parts of two-beam looms, nor fabrics evidently made using such a loom have been discovered during archaeological excavations. Consequently, this issue requires further investigations.¹²

As was stated above, some remains of foot-treadle operated looms had been discovered in Gdańsk and Opole. Regrettably, we have at our disposal no parts nor even illustrations of the loom coming from Opole and the only source of information about this apparatus is the description of it provided by G. Sage. According to this scholar, the discovery consisted of the remains of the side posts, hammered into the ground, two shuttles lying next to this framework and two pulleys used to lift the heddles.¹³ Three similar pulleys, dating back to the first quarter of the 11th, the first half of the 12th and the fourth quarter of the 12th centuries, were later found during postwar archaeological explorations (Fig. 12.7).¹⁴



Figure 12.2. Wool fabric from Opole, end of the 10th century, 2/1 twill, ZS.



Figure 12.3. Wool fabric from Opole, first quarter of the 11th century, 2/2 broken twill, ZS.

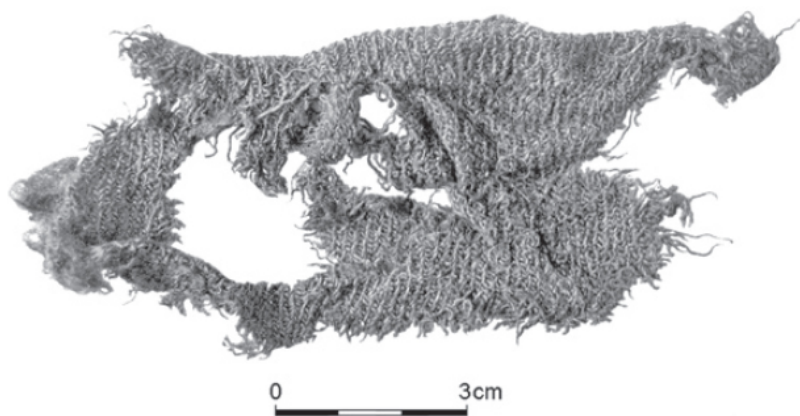


Figure 12.4. Wool fabric from Gdańsk, 12th century, 2/1 twill, ZS.

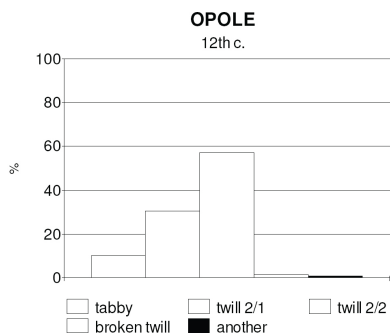
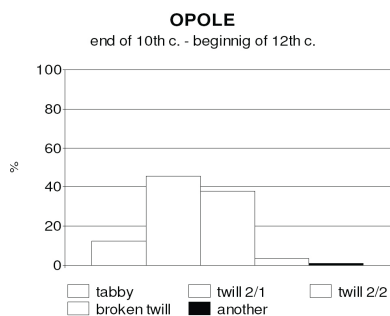


Figure 12.5. Proportional distribution of weaves in wool fabrics from early medieval Opoles.

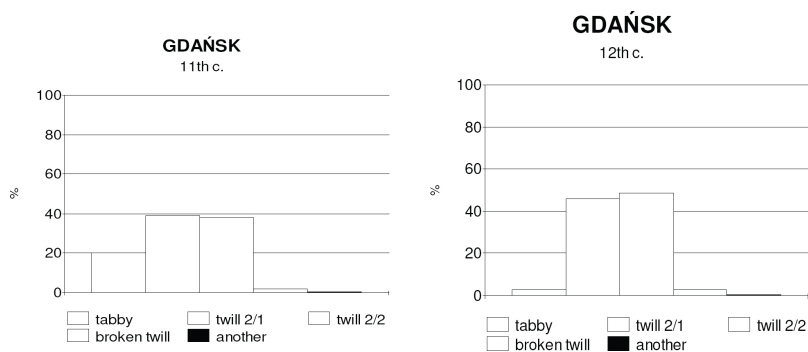
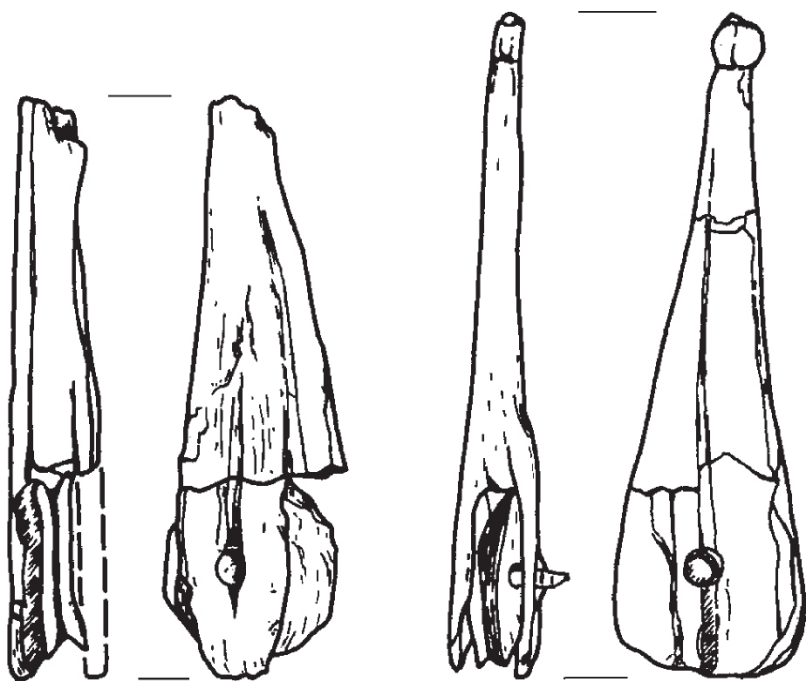


Figure 12.6. Proportional distribution of weaves in wool fabrics from early medieval Gdańsk.



*Figure 12.7. Pulleys of the foot-treadle operated loom from Opole, 12th century
(drawn by E. Wtorkiewicz-Marosik).*

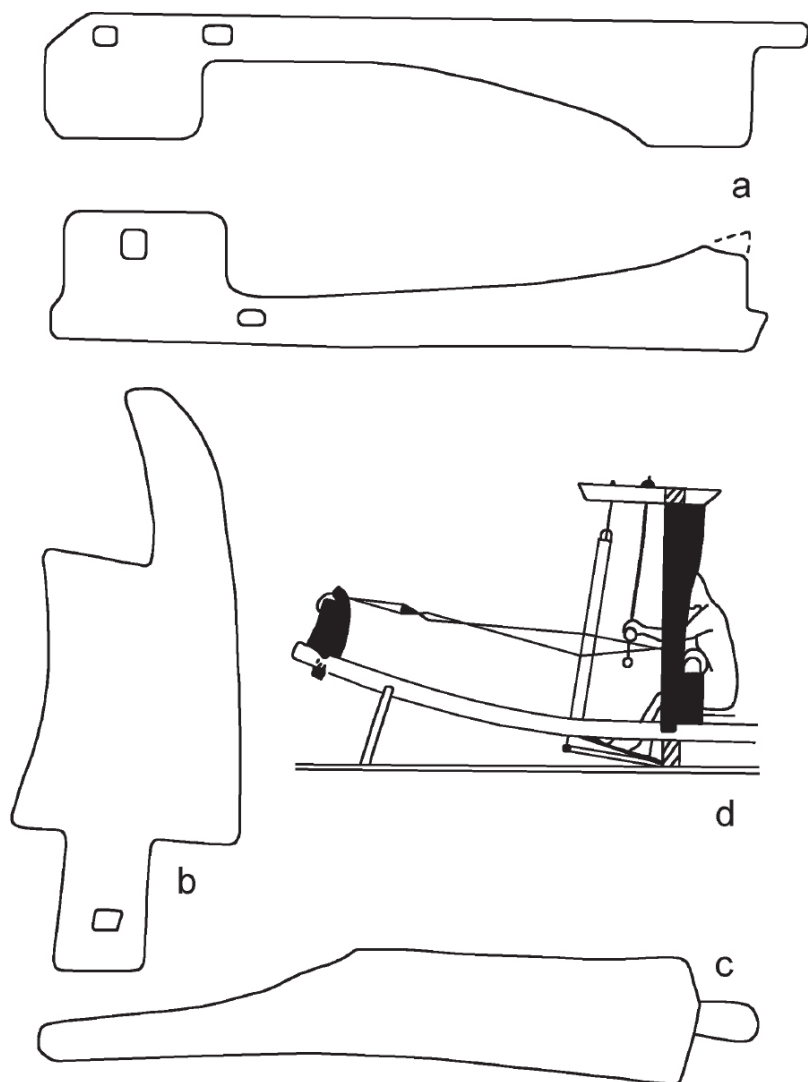


Figure 12.8. Fragments of the foot-treadle operated loom from Gdańsk, end of the 11th–12th century: a. supporting posts; b. warp beam stop; c. warp beam; d. reconstruction of the loom by A. Nahlik (drawn by E. Wtorkiewicz-Marosik).

The remains of looms discovered in Gdańsk come from different sections of the excavation and from various layers, so the context of this discovery is not as spectacular as the archaeological context in Opole. In Gdańsk, the scattered loom fragments were found in a situation which did not permit the identification of the building they had come from and consequently none of the buildings could be identified as the weaver's house. The two supporting posts of a loom were discovered in the stratum dated to the first decade of the 12th century, a warp beam stop and a fragment of this beam were unearthed in the layer dating back to the second quarter of the 12th century and two pulleys used for lifting the heddles date from the end of the 11th and the second quarter of the 12th centuries (Fig. 12.8).¹⁵

The above discoveries suggest that the foot-treadle operated loom came into use in Poland at the end of the 11th or at least in the 12th century. Similarly dated remains of foot-operated treadle looms found across Europe have been published by D. Cardon and the Polish artefacts seem to be deeply rooted in the history of medieval textile production in Europe.¹⁶

A. Nahlik's tests and experiments lead to the conclusion that foot-operated treadle looms were three times as efficient as warp-weighted or two-beam looms. According to the researcher, this growth in effectiveness permitted the sale of woven fabrics, which was out of the question if warp-weighted or two-beam looms were used.¹⁷

I fully agree with this opinion. Moreover, I am convinced that the greater part of the archaeological textiles discovered in Gdańsk, Opole and other Polish towns came from handicraft production and were woven using foot-operated treadle looms. It seems that the widespread use of 2/1 twill in wool fabrics can be associated with this type of production.

As was stated above, the majority of the fabrics were 2/1 and 2/2, usually unfelted twills. However, in the weft, they were

frequently ornamented with coloured stripes of different width, which suggests that both contemporary weavers and customers had very good taste.¹⁸

I am of the opinion that textile production in the 11th–13th centuries was aimed mainly at meeting the demand of the local market. Although some of the products could be exported to more remote regions, no evidence of such activity has been found. The demand for broadcloth of a high quality was met by imports from western Europe at least from the 12th century onwards. It seems, however, that textile products were not imported on a large scale.¹⁹

The 13th and the 14th centuries witnessed a rapid development of Polish towns, caused by an influx of settlers from western Europe. New towns, based on German Law, mostly Magdeburg and Lübeck laws or their local variants, started to displace old settlements. Trade flourished in the hands of Hanseatic merchants and one of the most common goods brought from Western Europe was cloth.

This phenomenon is clearly reflected in the archaeological material. Cloth and the transformations occurring in cloth production in the 13th–15th centuries will be discussed here based on the finds discovered during archaeological excavations in Kraków, Wrocław, Gdańsk and Elbląg (Figs 12.9–12.12).²⁰ The majority of the fabrics found in the collections of textiles coming from these cities are still 2/1 twills, which constitute 42–60% of the artifacts, but 2/2 twills are much less numerous and no 2/2 broken twills have been discovered. However, a higher proportion of fabrics made in plain weave can be observed, which seems to be a result of the simplification of methods for textile production, aimed at increasing its effectiveness (Fig. 12.13). The above changes in weaving production must have been brought by settlers arriving in Poland from Western Europe, where similar transformations were occurring on a large scale. It may only be noted that according to K. Tidow's research into the textiles of

Lübeck, in this town, 90% of all wool fabrics were tabbies as early as the 13th century.²¹

The fact that the tendency to simplify weaving techniques was a western influence could clearly be observed during the examination of medieval fabrics from Elbląg. Among the archaeological textiles, identified as local artifacts based on the type of material used, tabbies constituted only about 20% and Western European imports upwards of 32% of the finds (Fig. 12.14).²²

At the same time, the proportion of felted fabrics grew (from around 40% in Gdańsk to upwards of 90% in Wrocław). Undoubtedly, felting was a way of improving the functional value of wool fabrics. It also permitted concealing the use of plain instead of twill weaves.²³

The quantitative rise in cloth production which occurred in the Middle Ages resulted in an increased demand for wool and spinners. The large number of whorls found in early medieval archaeological strata suggests that spinning was a common activity. Whorls become much less numerous in late medieval layers, which may be a result of the fact that first the hand powered spinning wheel and from the 16th century onwards the foot powered wheel came into use. In the Polish lands, a spinning wheel was first mentioned in 1332. The tool was used in Świdnica, Silesia, by Beguines, who, among other things, occupied themselves with broadcloth production. Some of the women arrived from Germany and probably brought the new apparatus with them.²⁴

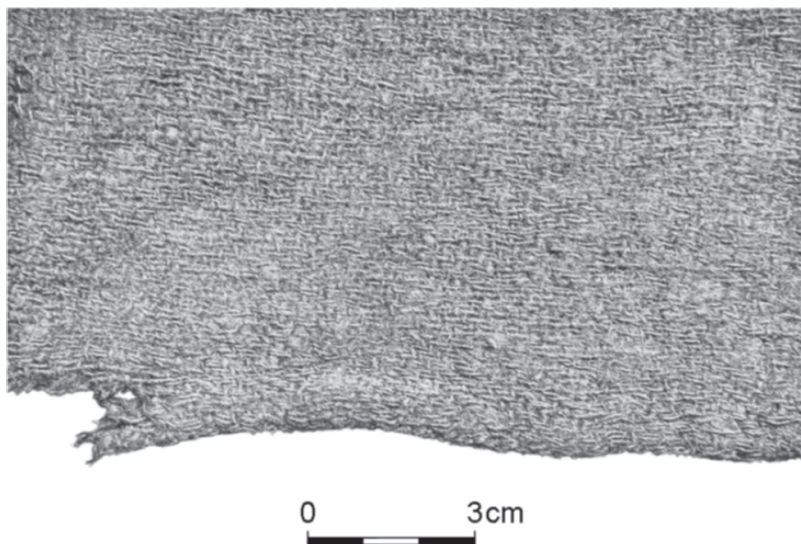


Figure 12.9. Wool fabric from Kraków, 14th century, 2/1 twill, ZS.

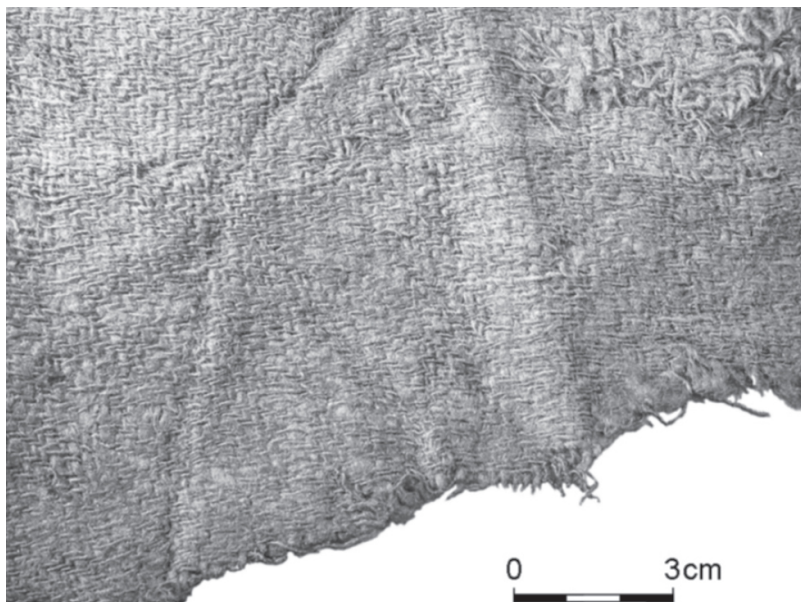


Figure 12.10. Wool fabric from Wrocław, 14th century, 2/1 twill, ZS.

Written records provide further but indirect hints about the use of the spinning wheel in the Polish lands in the 14th and the 15th centuries. In Elbląg's Old Town, in the vicinity of *Wollweberstraße*, there was a small lane called *Ketzerhagen*, *Ketterhan*, *Ketterhagn*, *Ketzerhan* or a similarly called backstreet, where the *Ketzerhagn* or the *Ketterhagin* family lived.²⁵ Their nickname or family name suggests a direct connection with the name of the place. Similar street names can be found in Gdańsk, where *Ketterhagen* Street is known to have existed in the vicinity of *Wollwebergasse*. In 1419 in New Town in Toruń, there were *Buden in dem Keczerhayne*²⁶ and in Wrocław, spinners from Wallonia lived near *Katzerberg* Street.²⁷

Although the word *Kötzer* may be used in different senses in the literature, it is always connected with yarn. The term denoted a shuttle spool, a warp beam or a weft beam and was thus related to yarn as well.²⁸ A slightly different meaning of the word *Kötzer* was found by the Elbląg historian A. Semrau in 19th century dictionaries. The term meant a spindle with some yarn spun on a great wheel or the yarn spun on a great wheel.²⁹

May it tentatively be assumed that in large towns, where numerous groups of German settlers lived, whole families occupied themselves with spinning by means of hand powered great wheels and their family names were derived from the name of their profession?³⁰



Figure 12.11. Wool fabric from Gdańsk, second half of the 13th century, 2/2 twill, ZS.



Figure 12.12. Wool fabric from Elblag, 14th century, tabby, ZS.

Although, undoubtedly, the invention of the spinning wheel facilitated spinning, this stage still remained the bottleneck of textile production. An interesting description of a Polish broadcloth workshop dates back to the 19th century. The loom used in the workshop was identical to the medieval apparatus, which would suggest that 10 spinners using spinning wheels were necessary to supply yarn to one weaver.³¹

The 13th century also witnessed the first changes in the organisation of broadcloth production. In Opole or Gdańsk, weavers using foot-operated treadle looms, which were a novelty and that time, worked on their own. However, from the 13th century onwards, guilds appeared. The aim of these corporations was to organise religious, professional as well as social life of their members and their families. It seems that two clothiers guilds existed in Wrocław before 1296. Similarly in New Town in Toruń, the Clothiers Guild was probably formed before 1297.³² Numerous guilds appear to have been founded during the 14th century, though their statues have usually survived in the form of later copies and reprints. For example, the Clothiers Guild of Gdańsk was first granted their Statutes in 1378, but only an 18th-century copy of its Statues dating from 1459 is held in the Archives of Gdańsk.³³ Similarly, only an eighteenth-century copy of the Statues of the Clothiers Guild of New Town in Elbląg, granted in 1420, has survived.³⁴

Guild statutes are an important source of information about the life of craftsmen, who formed tight associations governed by their own laws. These documents regulated the methods and norms of production, quality control measures, specified the conditions of Membership, defined mutual professional and social relations between the members. I discussed the subject matter more broadly in my paper entitled *Wollweberei in einer mittelalterlichen Stadt. Elbinger Beispiel*, delivered at the symposium *Urban textiles in Social Context* in Tartu in 2009.³⁵

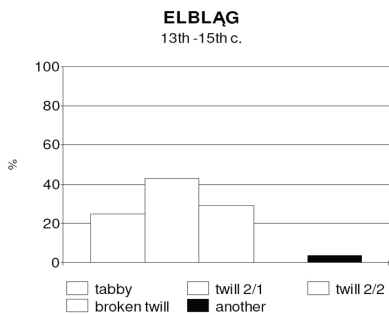
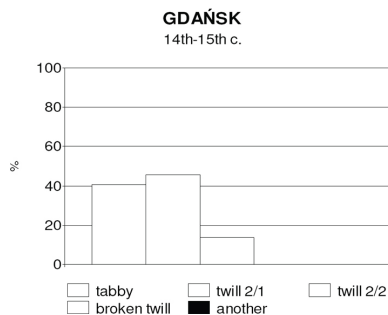
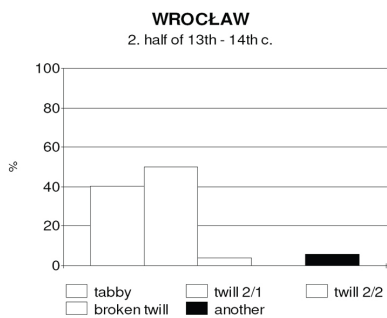
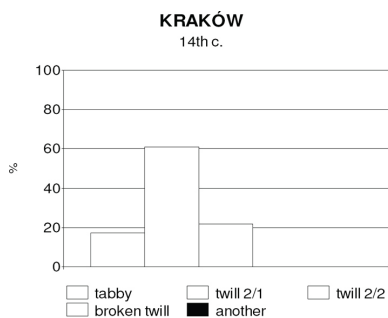


Figure 12.13. Proportional distribution of weaves in wool fabrics in the Late Middle Ages.

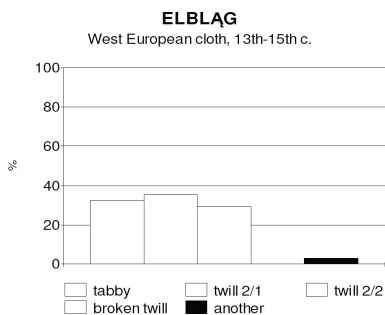
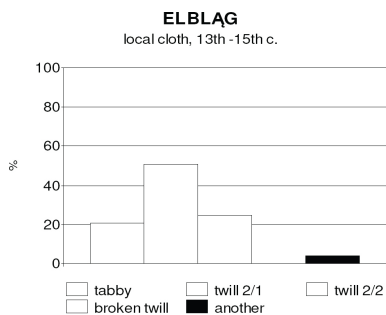
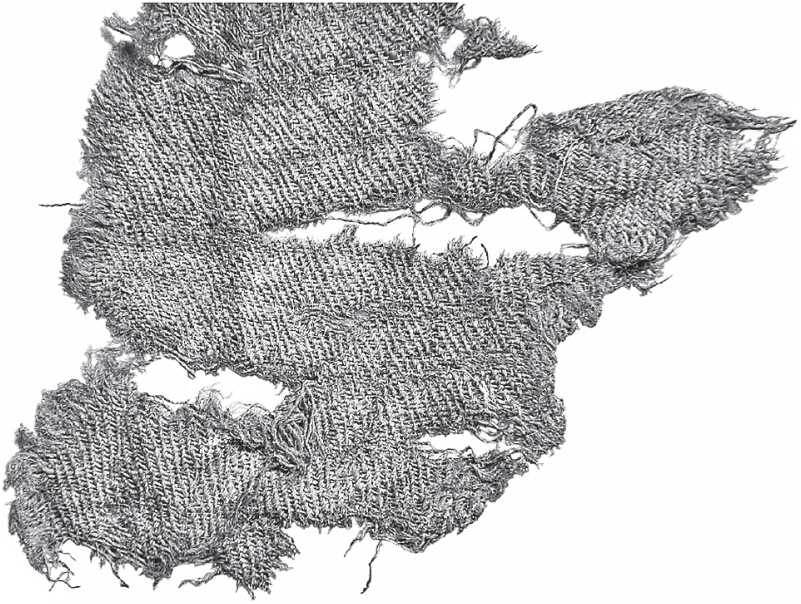


Figure 12.14. Proportional distribution of weaves in local and West European wool fabrics in late medieval Elbląg.



Figure 12.15. Wool fabric from Elbląg, probably a West European import, 13th–15th century, tabby, ZS.



0 3cm

Figure 12.16. Worsted (combed) wool fabric from Kraków, probably a West European import, 14th century, 2/2 twill, ZZ.

As was stated above, hanseatic trade in broadcloth was well developed in the Middle Ages. Therefore Western European imports can reasonably be expected to be found in all collections of archaeological textiles discovered in excavations conducted in Polish historic towns.

It is sometimes difficult to distinguish them from local artefacts, especially because of the fact that foreign settlers brought Western European production techniques to Poland. For this reason, I have decided to use wool as the selection criterion. The material used in Western Europe differed from the wool obtained in Central and Eastern Europe. I shall not discuss this topic more broadly and refer you again to my paper presented in Copenhagen in 2006. I would like, however, to show a few examples of fabrics coming from the territory of Poland and classed as western imports.

Among them, there are a few fragments of well felted broadcloth from Elbląg, Kraków and other towns. The finds are made in different weaves. Most of them are 2/1 twills and tabbies (Fig. 12.15). The collection includes a series of worsted (combed) wool fabrics found in different towns. The find I wish to mention here is a 2/2 high quality wool twill made from zz-spun yarns discovered in Kraków (Fig. 12.16).

Let us now come back to the 14th- and 15h-century high (over 70–100 threads per cm) thread-count fabrics found in Gdańsk (Figs 12.17–12.18). When I discussed these finds in Copenhagen in 2006, I classed them as Western European, most probably Flemish, imports, but could not provide any analogues.³⁶ Now I am familiar with over a dozen such finds discovered over the last few years in the medieval shipyard (*Lastadia*) in Gdańsk. They are currently being examined by Dr M. Grupa, the Nicolaus Copernicus University in Toruń, who has found no analogues either. Further research has to be conducted in cooperation with Western European scholars in order to establish the provenance of

these artifacts and this is the reason why I come back to this issue again.

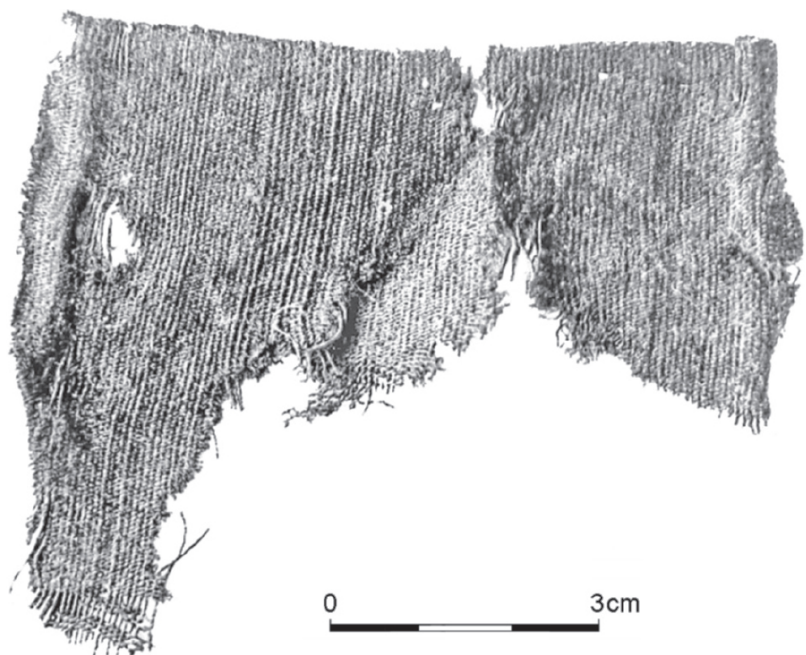


Figure 12.17. Wool fabric from Gdańsk, probably a West European import, 14th–15th century, 2/2 twill, ZS, 72 warp threads and 14 weft threads per 1 cm.

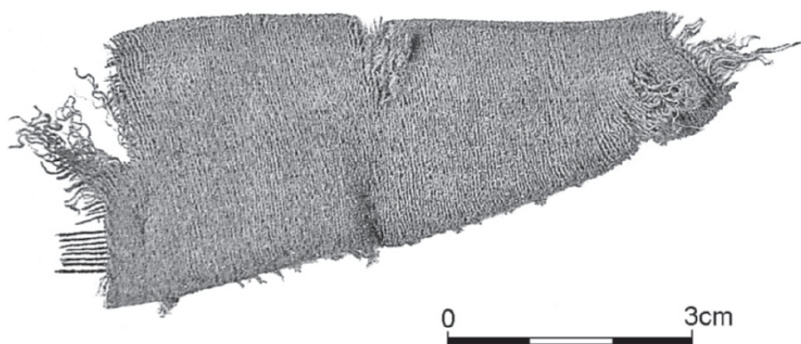


Figure 12.18. Wool fabric from Gdańsk, probably a West European import, first half of the 14th century, 2/2 twill, ZZ, 115–120 warp threads and 16 weft threads per 1 cm.

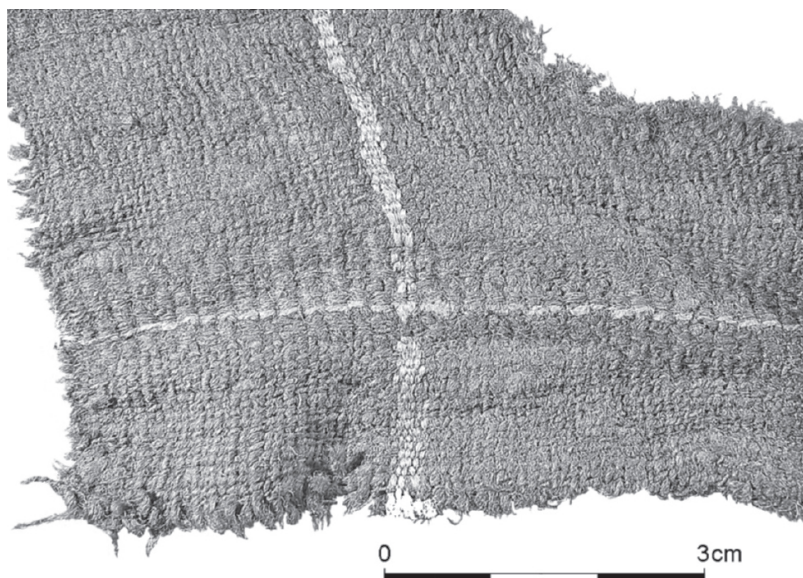


Figure 12.19. Wool fabric with silk threads from Wrocław, 14th century, probably a German import, tabby, ZS-spun wool threads and S/2Z-spun silk threads.



Figure 12.20. Wool fabric from Elblag, end of the 13th or the turn of the 13th century, probably an Italian import, 1/4 satin, Z/2Z.

In my opinion, a collection of high quality wool fabrics, most probably made from English yarns, with silk threads added found in Wrocław should also be classed as western European imports (Fig. 12.19). According to my information, wool and silk fabrics were made in Cologne, starting in the 13th century. Thus the fabrics in question may have been imported from Germany.

While preparing this overview of Western European fabrics discovered in excavations carried out in the territory of Poland, the oldest wool fabric with which I am familiar should not be overlooked. This textile, made in 1/4 satin, is an exceptionally beautiful artifact, woven from English or Spanish wool of a very high quality and decorated with horizontal stripes (Fig. 12.20). It was discovered in Elbląg, in the stratum dated to the end of the 13th or the turn of the 13th century.³⁷ As far as I know, it has no equally early analogues in either Poland or western Europe. Therefore, in my opinion, the artifact may be considered a Southern European import. It may have been woven in Italy, where silk fabrics made in satin weave were produced in the Middle Ages.

To sum up the above, it should be stated that professional broadcloth handicrafts developed in the large towns of early medieval Poland at least from the 12th or even from the close of the 11th century onwards. Contemporary weavers used modern foot-operated treadle looms, whose efficiency permitted production and sale of cloth. Their products were mostly sold on the domestic market. Local supplies of textiles may have been complemented by western imports, but this phenomenon was of no greater significance.

Throughout the 13th and the 14th centuries, the development of Western European settlement and the appearance of towns based on German Law were accompanied by the development of cloth handicraft and the simultaneous formation of guilds. The cloth produced was sold mainly on the domestic market, but cloth

artifacts, particularly luxurious fabrics, were also imported in large quantities from Western Europe to meet demand from higher-class customers.

Acknowledgement

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13. Hanseatic Textile Production in 15th Century Long Distance Trade

Angela Ling Huang

Almost every article that deals with European textile trade in the Middle Ages justly starts with emphasising the importance of textiles in long distance trade. This is certainly true and led to extensive research on medieval textile production and trade.¹ But still our perception of textiles as a commodity tends to be rather simplistic. The relevant articles in current encyclopaedias and handbooks on medieval textile production and trade reflect the focus on the well-known production areas of silk, woollen cloth and fustian in the Netherlands, England, southern Germany and Italy.² Due to this concentration on surely leading production areas, we are still not able to grasp textiles as a diverse commodity in its full extend. Limiting an important textile production mostly to these areas and fabrics does not take into account the variety in which especially late medieval textiles were produced, entered trade and reached their target markets.

Thus, to extend our knowledge, new regions have to be investigated. One region that particularly offers itself to such an investigation is the hanseatic area. Hanseatic merchants and cities were evidently engaged in large-scale textile trade.³ Yet this region has by now received almost no attention as an area of textile production. Until today it forms a blank on our map of medieval textile production, even though textile production for long distance trade was widespread in the bordering regions, the Netherlands, England and southern Germany.

The hanseatic area is in fact regarded as a region of mere

transit trade. In his well-known handbook on the German Hanse, Ph. Dollinger sums up this common view. He claims that textile production didn't develop within the hanseatic area due to the imports of Flemish and English woollen cloth, and that thus hanseatic textiles played at the most a subordinate role in hanseatic trade – although at the same time he acknowledges the existence of a lively trade in linens from the hanseatic area.⁴ In addition, merchants as the ruling class of these cities should have actively suppressed the emergence of urban textile guilds to secure their power.⁵ Other authors second this view that the hanseatic area had at the most a marginal importance as a producer of textiles.⁶ This is mainly based on the lack of evidence given by the so-called hanseatic source material, but is itself not supported by hard evidence.

I would like to challenge this position once again, based on the following assumptions: the hanseatic region itself was a dense network of markets; the wealth brought to the cities through their merchants' trade must have fuelled textile consumption and thus, to a certain degree, also production. Furthermore, hanseatic cities had good pre-conditions for establishing an exporting textile production: the merchants had access to extensive distribution networks and market information for the disposal of their domestic textile production abroad; in addition, they enjoyed economic advantages through hanseatic privileges. Raw materials and the know-how for production were also available through trade networks and close-by north-western European production centres.

First studies support these assumptions: Apart from a study on linen trade in northern Germany,⁷ only two articles are especially devoted to trade with textiles produced in the hanseatic area. Whereas Holbach's collection of the evidence published to date provides a good starting point for investigating the extent of textile production in the hanseatic area, Jenks's article on Saxon textile exports gives a first impression of the range and amount of

trade in hanseatic textiles.⁸ These works already allude to an importance of these textiles in regional as well as in long distance trade, but have had little if not no impact on hanseatic research.

Furthermore, town history also locates an exporting textile production in hanseatic towns, indicating a standardised production in a scale too large for local markets. For example in Osnabruck, the revenues from the so-called *Legge*, an institution for urban quality assessment, escalated between 1459 and 1519: in 1459, the city's accounts register already more than 12 mark in local currency in the *lewentbusse*, the box in which the fee for certifying linens was collected. In 1489, a little less than 21 mark lay in the *lewentbusse* and in 1519 more than 66 mark are recorded.⁹ This clearly indicates a remarkable growth if not of local linen production itself, then of urban quality assessment. Either way the production was obviously not only geared towards home markets.

Last but not least, the export trade of single production sites has already been investigated. For example for Gottingen, scattered textual as well as archaeological evidence already pointed towards a continuous disposal of woollen cloth made and sealed in the city all over northern Europe. Written sources prove that these textiles were traded in the Baltic area, to Lubeck, Danzig (Gdansk), Riga, Reval (Tallinn) and Novgorod, but also to western markets, especially in the Netherlands. In addition, large numbers of lead seals were found in Scandinavia where archaeological excavations have been conducted at a larger scale. The finds are especially concentrated on Zealand, southern Sweden and Gotland.¹⁰ This example shows how a hanseatic production site successfully aimed at the needs of customers abroad.

To re-evaluate the extent and importance of textile production in the hanseatic area in medieval long distance trade, these case studies have to be collected and put into context with the printed collections of the so-called hanseatic source compilations such as

the *Hanserecesse* and the *Hansisches Urkundenbuch*. But these compilations alone do not provide us with sufficient proof to reveal the characteristics, extent and development of an exporting production of textiles within the hanseatic area.

Thus, it is necessary to seek out further archival material. The English Customs Accounts in particular have proved themselves a fruitful source for the investigation of textile production and trade. Studies using the London Customs Accounts already pointed towards a lively trade in hanseatic textiles which challenges the value of hanseatic sources regarding this trade.¹¹ Admittedly, the analyses of Cobb and Harding already point towards a limitation of the London Customs Accounts, as the accounts presented here represent two different kinds of accounts: The 1384 account as the first surviving Particulars of Account, covering only three month, documents the subsidy Poundage paid by all merchants; the 1480/81 account on the other hand is a Petty Customs Account, only listing alien imports.¹² In these years as in any other year up to the early 16th century never both accounts together survived. In addition, the hanseatic merchants were in that period mostly exempted from paying the Poundage.¹³ Thus, the London Customs Accounts never represent the total but only a minimum of textile imports to London. However, the Particulars of Account, listing every ship and its cargo, provide incomparably detailed information on late medieval textile trade; they also build the basis of my research as this is the only material that allows conclusions on the share of hanseatic textiles in textile trade.

The following discussion presents the research I conducted to investigate an exporting textile production of the hanseatic area,¹⁴ but is naturally restricted to some of my finds. To give an introduction into my research, this article is thus especially dedicated to hanseatic textiles as part of the landscape of late medieval textile production and trade. In the first part, I will map the production centres recorded in the source material up to 1500, looking into the development of an exporting production in the

hanseatic area afterwards. In the second part of this article, I will introduce you to some first conclusions on how to characterise hanseatic textile production within the wider framework of European textile production in the Middle Ages.

Hanseatic textile production: from where and where to

Looking at the evidence on long distance trade with hanseatic textiles up to 1500, two general things can be said. First, hanseatic textile production was not concentrated on one particular region within the hanseatic area. Second, it was by no means uniform or specialised as, for example, the English production of woollens which, *prima facie*, seems to make the label ‘hanseatic’ somewhat artificial; both woollen and linen cloth were produced in the east as well as in the west. There are no common hanseatic regulations documented in the minutes of the hanseatic diet. The only common feature seems to be the use of locally produced wool and flax; consequently, due to the use of local raw materials, hanseatic textiles were of rather mediocre quality. The sources characterise them as coarse and undyed or bleached.¹⁵ The sources related to long distance trade locate relevant linen production in Saxony and Westphalia as well as in Prussia and the Wendish region.

The analyses of the London Particular of Accounts conducted by both Harding, for three months in 1384, and Cobb, for the whole fiscal year 1480–81, highlight the importance of Saxon and Westphalian linens in long distance trade. In 1384, about 139,000 ells of hanseatic linens were imported to London. According to quantity, they hold a share of nearly two-thirds of the recorded imports between July and October. Almost all of these linens were labelled *Westfale*, suggesting Westphalia as their production area; they were only supplemented by small quantities of Prussian linens called *Prucie*.¹⁶ In 1480–81, Cobb counted about 190,000 ells of hanseatic linens for the whole year – an extrapolation that is disputable. It does, however, give an impression of the importance of hanseatic linens for the English market. Listed by

quantity, they mainly came from Herford, Osnabruck and Salzwedel. Only small amounts of 7,000 ells and less came from Hanover, Munster, Prussia, Hamburg and Uelzen.¹⁷ These imports corresponded to about 40% of the textile imports of aliens recorded in that year.¹⁸

My analysis of the other surviving Particulars of Account of the London Customs Accounts between 1384 and 1503¹⁹ supports this geographical pattern.²⁰ Linens from Salzwedel, Brunswick, Gottingen and Hanover in Saxony and from Herford, Osnabruck and Munster in Westphalia were imported regularly and in substantial amounts, supplemented by smaller quantities of Prussian linens and canvas. In addition, linens from Cologne, Uelzen, Hamburg, Stendal and Lemgo were imported sporadically. Furthermore, the share of hanseatic linens seems to have been stable throughout the period under investigation. In average, a third of England's textile imports throughout the 15th century were hanseatic linens (Fig. 13.1). Hanseatic linens thus played an important part in English textile trade.

No similar evidence is available for any other market, neither for linens nor for woollens. But in the light of the English evidence, further references to the linen trade of Saxon merchants to Flanders in the 14th and 15th century point towards a similar importance.²¹ A tariff from 1480 also lists Saxon linens among the main commodities that were shipped from Hamburg to the West.²² This trade was surely partly geared to England, but ships normally stopped over at Dutch markets first.²³ Thus hanseatic textiles, too, were brought to the Dutch markets and fairs before being shipped to London and it is reasonable to conclude that they were to a certain extent sold there.

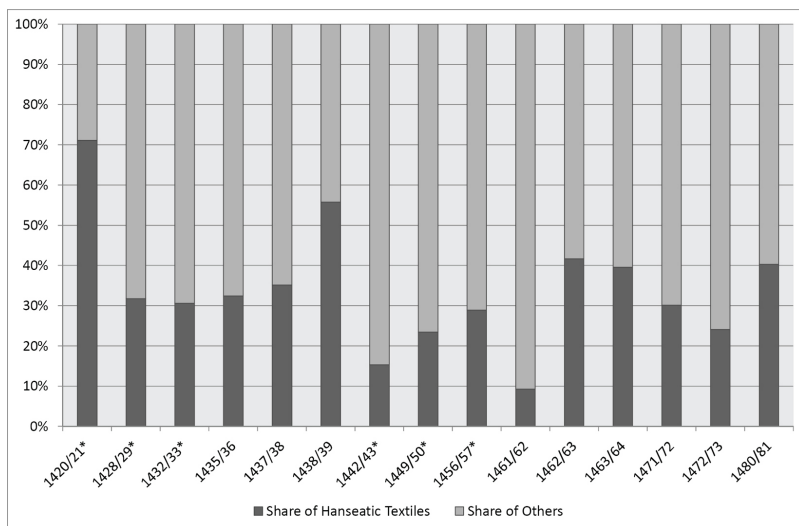


Fig. 13.1. The share of hanseatic textiles in the textile imports to London throughout the 15th century, based on the analysis of full fiscal years documented in both Poundage () and Petty Customs Accounts.*

The presented evidence strongly suggests that hanseatic linen production was mainly geared to western markets. Only the linens of Munster and Lubeck are mentioned in trade to eastern markets. In the second half of the 15th century, several inventories listing hanseatic losses in ships with Reval as their destination list *Munstersche louwand* and/or *Lubesche louwand* as part of their cargo.²⁴

For woollens, we can find roughly the same geographical patterns: They were also produced in Westphalia, Saxony, the Wendish towns and Prussia. Mainly the same cities were engaged in that trade. The following trademarks must be added: in Westphalia especially Dortmund, but also Cologne; in Saxony, Magdeburg and Walsrode; in the Wendish region, Wismar Rostock and Stralsund; in Prussia, Danzig, Thorn, Marienburg; last but not least, Thuringian towns also produced woollen cloth, namely Nordhausen, Mühlhausen and Erfurt. The grey cloth produced in those regions was traded to all hanseatic markets, to the west and the north, but especially to the east. Only a few hanseatic cities produced both woollens and linens for long distance trade, such as Stendal, Lubeck, Brunswick and Gottingen.²⁵



Fig. 13.2. The distribution of an exporting textile production throughout the hanseatic area, up to 1500.

The map of hanseatic production centres that I put together for this article (Fig. 13.2) is by no means complete, but shows already the extent and importance of hanseatic textile production in long distance trade. But only further archival research will allow us to grasp the vibrant textile production in the hanseatic area in its full extend.

The development of hanseatic textile production

Until 1500, the hanseatic area had thus developed a diverse exporting textile production. Except for the Prussian linens, by then textiles from the hanseatic area were all urban trademarks. This raises the question how this textile production developed. Even though we lack evidence for that time, the hanseatic privileges in Flanders point towards an increasing long distance trade in hanseatic textiles from the mid-14th century on. It is most likely that a widespread standardized exporting production did only emerge during the second half of the 14th and especially in the 15th century.

For the first time, hanseatic textiles are mentioned in the hanseatic privileges in Flanders in 1360. These privileges name linens as well as grey woollens from the hanseatic region among the main commodities in Flemish–hanseatic trade. The hanseatic privileges of the count of Flanders from 1360 mention especially linens;²⁶ the tariff for transactions in the city of Bruges, dates a few days later, mentions linens, canvas, and woollens that were brought from the east.²⁷ The preceding negotiations for these privileges from 1358 show clearly that the merchants deliberately sought special custom rates for their ‘own’ textile production.²⁸

Further evidence from the major markets through which hanseatic textiles were exported to the west underline the growing importance especially of linens since the second half of the 14th century. These markets were Cologne and Hamburg. The economy of Cologne, in particular, was already specialising in textiles, their

production, finishing and trade, in the second half of the 14th century.²⁹ For Hamburg, the hanseatic pound toll books from the 1360s show that substantial amounts of linens were traded through the city.³⁰

That we cannot find similar regulations for the other markets may be due to the fact that the Netherlands were the main market for late medieval textiles; at the fairs of Brabant and Antwerp as well as the markets of Zeeland, textiles from all over Europe were concentrated for redistribution. In addition, the *Novgoroder Schra* shows how the Hanseatic League controlled for example textile trade to Russia and decided internally which textiles were allowed there.³¹

Trade in raw materials and semi-finished goods such as yarn seems to have been equally important and probably pre-dated trade in hanseatic textiles. Wool from the east for example is for the first time named in a tariff from 1252.³² In the London Customs Account from 1384 and 1480/81 substantial quantities of flax and yarn were imported.³³ In addition to a possible development from a trade in raw materials to a trade in textiles from the hanseatic area, this indicates that hanseatic producers were not dependent on imports, but based their production on regional supply.

It is again only the English source material that allows us to trace the development of hanseatic textile production further. Of course, this also limits the findings to a certain market with a certain demand. For England, this was since the second half of the 14th century linens. From the 1360s on, woollens almost completely disappeared from the English imports and linen took over.³⁴ From the 1380s on when the London Customs Accounts first provide us with detailed evidence on imported textiles, trade in linens increased until the mid-15th century when the city of Antwerp claimed that linens had surpassed woollens in trade.³⁵ Thus, hanseatic linens are part of a general trend in English textile trade.

Regarding the development of hanseatic linens at the English market, the London Customs Accounts indicate three stages. The first, lasting until the 1420s, is characterised by a primarily rural production. The hanseatic brands that were imported to London were almost exclusively *Westvale* and in small amounts *Prucie* – both brands with a regional label. Evidence from the Westphalian cities supports that at this time these cities did not produce an urban brand yet. Merchants probably ordered or bought the linens at the hinterland, before they were shipped to foreign markets. *Westvale* was at first most likely a certain kind of weaving produced in Westphalia and maybe also in the neighbouring regions; the same might be true for *Prucie*. By the price we can assume that it was of no specific workmanship and rather cheap.³⁶ Despite this, it was already bought by the royal household in 1350³⁷ and the Grand Master of the Teutonic Order didn't mind having his underwear made out of Westphalian linens.³⁸

The 1420s mark a clear line to a second stage of textile production – from a rural to a standardised urban production. *Westvale* became outdated and urban brands developed. Until the 1470s, Saxon linens from Brunswick, Gottingen and Salzwedel dominated the English market.³⁹ The linen trade of merchants from these cities dates back to the 13th century.⁴⁰ But before the 1420s there is no mentioning of certain producing cities. We can assume that only at the beginning of the 15th century urban linen brands evolved. Saxon linens might have been a part of *Westvale* in the late 14th century as Stuart Jenks suggests,⁴¹ but in developing urban brands with a certain quality they squeezed Westphalian rural production out of the English market.

The third stage is marked by a clear shift in brands by the late 1470s. This shift started by mid-century, when for the first time linens from Herford were imported to London. That altogether the hanseatic product line changed not until the 1470s must be due to the ongoing English-hanseatic conflicts between the late 14th century and the peace treaty of Utrecht in 1474⁴² that maintained

textile trade the way it was. But from the 1470s on, Westphalian urban brands conquered the English market: besides linens from Herford, these were linens from Osnabruck and Munster, supplemented by the Saxon linens from Hanover and the still popular Salzwedel.⁴³ In connection with the evidence from the producing cities, we can conclude that Westphalian urban brands emerged not until the middle of the 15th century. The built-up of urban production and quality assessment in Westphalian cities was most likely promoted by the competition with the Saxon producers of linen in long distance trade. As a result, not only urban brands developed, but these brands were of a higher quality than their Saxon competitors. With 4 pence per ell the new brands, including Hanover, were priced 1 penny higher than the previous brands.⁴⁴ Thus, throughout the 15th century, a standardised exporting production developed in the production centres for linens in Westphalia and Saxony and they were clearly competing for the English market. Altogether, the development presented in this paper shows that hanseatic textiles became a product fit for special markets, evolving from an unspecific regional production to a standardised industry.

Quality assessment is known for most of the production sites identified at the English market, also committing a wide hinterland to urban regulations. My in-depth study of the production centres supplying the English market shows that linen production was based mainly in the rural areas surrounding the towns they were named after. The linens were then concentrated and certified in the city before they entered long distance trade.⁴⁵

Merchants most likely initiated a standardised production; they certainly did their best to enforce the production standards. In Gottingen for example, in 1398 merchants could enforce their exclusive right to export locally produced linens.⁴⁶ When in 1439 the linen weavers asked to be allowed to produce strait linens, the merchants successfully refused.⁴⁷ Through their export monopoly, the merchants of Gottingen could apply considerable pressure on

local weavers to secure the quality of the product.

The evidence for woollen cloth in the second half of the 15th century speaks in favour of a similar development. Furthermore and most importantly, the evidence suggests that the cloth produced throughout the hanseatic area was of similar making: Fifteenth-century sources repeatedly characterise hanseatic woollen cloth as being coarse and grey,⁴⁸ using these identifiers sometimes as an equivalent to the individual name of the trademark.⁴⁹ This speaks in favour of the existence of hanseatic textiles, meaning that hanseatic textile production was adjusted to similar if not the same standards at a hanseatic scale.⁵⁰

In difference to linens, the production of woollens was always part of urban economy. Each brand had its individual specifications. Taking again Gottingen as an example, we can see that production was not least improved to secure the disposal of domestic cloth abroad. In 1424 the masters of the guild of woollen weavers limited the production of one weaver to 70 pieces a year, assuring that quick weaving would not influence the quality.⁵¹ In doing so, they reacted on complaints from the Russian market from 1423.⁵² Furthermore, in 1476 the city council established a new sort of cloth within the city, giving the weavers precise orders how to weave their cloth. The ordinance specifies the wool to be used, the length and width of the cloth as well as quality assessment and sealing of each piece.⁵³ One year later, a dyer was recruited by the city to dye five different colours: blue, green, red, brown and black.⁵⁴ In 1498, the city council also interfered in the production of the old guild of weavers, introducing the sealing of their products.⁵⁵ We barely possess such rich evidence for any other city, but the mentioning of urban trademarks proves that they must have been there.

Only in Prussia were general rules introduced regulating the production of woollen cloth – due to the fact that here, in contrast to any other region within the hanseatic area, the Teutonic Order controlled the whole Prussian territory for a comparatively long

time. Probably on request of the Prussian merchants, the Grand Master of the Teutonic order introduced common regulations for production of woollen cloth in 1402. Basically it controlled the use of wool and the size and measurements of each piece.⁵⁶ Yet we can find different urban brands among the exports from Prussia as well as at foreign markets. The Pound Toll Book of Danzig (1409 and 1411) names woollen cloth from Danzig, Thorn and Marienburg.⁵⁷ These mercantile efforts to secure or improve domestic textile production emphasise the importance of hanseatic textiles in hanseatic trade; they also attest that merchants were very well aware of this and tried actively to improve their products. Regional adjustments as accomplished in Prussia can be seen as a best case scenario as they provided the market with a transparent product and made merchants, to a certain degree, independent from local producers.

Hanseatic textiles in the medieval economy

Let us now draw some first conclusions from this brief introduction to my research, focusing on the role hanseatic textiles played in medieval long distance textile trade. This includes the question as to whether or not we can actually speak of hanseatic textiles as a certain kind of production.

Certainly, the hanseatic area was not an area of a particular specialisation as was southern Germany or England. Its sub-regions, however, developed a specific production from the second half of the 14th century. But in terms of trade, it seems justified to speak of a hanseatic textile production as the Hanseatic League played a decisive role in marketing hanseatic textiles abroad. These textiles achieved importance in trade through the activities of hanseatic merchants. Production was adapted for hanseatic trade, for the markets that were linked to the producing areas by hanseatic trade routes.

This interpretation is supported by parallels in the developments of the Hanseatic League and an exporting textile

industry in the hanseatic area. Hanseatic privileges mention trade in hanseatic textiles from the second half of the 14th century. At that time, the German Hanse emerged as an organisation of towns and a network of markets at home as well as abroad. Thus, the hanseatic trade network provided the basis for trading domestic textiles to foreign markets. In addition, the urban sources on production indicate that hanseatic merchants actively influenced production in their hometowns, enforcing standards of production and establishing quality assessment to make the product fit for long distance trade. Thus, the term hanseatic textiles must stand for a textile production that developed into a specialised industry following the lead of hanseatic trade.

Speaking about textiles in medieval trade in general, the development of an exporting hanseatic textile production represents overall changes in late medieval textile trade. These changes happened throughout the 14th century. They were mainly caused by the plague that led to profound changes in the medieval economy⁵⁸ and remodelled patterns of textile consumption.⁵⁹ Besides a new popularity of rather simple, undyed woollens, this gave rise to a standardised production of a variety of fabrics to cover new demand. In that context, the production of hanseatic linens was – at least in its origins – by no means a trendsetter. Quite the contrary: Hanseatic textile production was deliberately following trends in north-western European production. Hanseatic textiles owed their rise in the late Middle Ages to the general changes in consumption that transformed textile production in a large-scale production for a new consumer demand.

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14. Noble Customers of Cloth at the Frankfurt Fairs around the Year 1500

Thomas Ertl and Michael Rothmann

In the late Middle Ages, the trade fair in Frankfurt am Main became one of the most important trading hubs in central Europe.¹ German and foreign merchants visited the fair and exchanged currencies, commodities and raw materials produced in all parts of Europe, the Mediterranean region and beyond. The fair took place twice a year, once in the spring during the two weeks in the middle of Lent and once in the autumn, from Assumption Day until the birth of the Blessed Virgin Mary (15 August–8 September). During this time, merchants, traders and consumers met in order to clear their accounts and to deal in wholesale and retail. The event was famous even beyond the realms of the Holy Roman Empire and had considerable impact on the rhythms of the western European trading economy. In 1432, the city council of Zurich reflected on the significance of Frankfurt's trade fair in a letter which states:

Hence the fairs and markets of Frankfurt are set and held by the grace and freedom of the Holy Roman Empire in honor of the same Empire and for the sake of the common good, laudably held for many years and much time, and located in Frankfurt, a city well situated for the traders by water and by land, in the centre of the upper and lower and other surrounding German lands.²

What sounds like an advertising slogan was in reality a statement

within a legal dispute between the cities of Frankfurt and Nuremburg describing accurately the geographical and commercial centrality of the trade fair on the Main.³ While this assessment of Frankfurt's paramount commercial significance was shared by many German traders and scholars, their judgment on this topic wasn't always positive. Martin Luther and his Protestant followers, for instance, were strongly convinced that Frankfurt was the gate through which luxurious and superfluous commodities entered Germany while its riches left the country.⁴

Located amidst the Rhine-Main region and attached to the Rhine and its tributary streams, Frankfurt am Main acquired this trans-regional commercial importance by the high Middle Ages,⁵ not least fostered by kings and emperors of the Holy Roman Empire who regularly set up their camp in the city's royal palace. The city's rise from the 11th to the 13th century was notably marked by a series of royal and imperial diplomas which guaranteed and enlarged the city's privileges.⁶ Emperor Frederick II, for instance, provided all visitors of the '*nundinas apud Frankenfurth*' with safe conduct all over the realm, thereby illustrating the ever-growing importance of this market.⁷ The unique significance of Frankfurt's trade fair became evident in a diploma issued by Emperor Lewis IV of Bavaria in 1337, in which he ordered not to endow any other city with a market or a trade fair if it could be of harm to the trade fair in Frankfurt.⁸ Backed by such royal support, the city knew how to retain its paramount position for centuries. Alongside other commercial and financial hubs such as Bruges, Chalon-sur-Saône or Geneva,⁹ the city's fairs structured and boosted the economical entanglement of late-medieval and early-modern Europe at large.¹⁰ Specifically, Frankfurt and its trading fairs played a crucial role within the border of the Holy Roman Empire between the North Sea and the Alps.¹¹ Remarkably, despite all historical vicissitudes and the fairs' loss of economic significance, the city, as is well known, kept its importance as a financial centre in Europe. This is certainly one

incentive to look at Frankfurt's medieval trade fair from a historical perspective.¹²

The focal point of this study is not the overall history of the fair and its position within the economic networks and trade fair system of late medieval Europe,¹³ but its significance as a cloth market, especially as a regional cloth market for the nobility resident in the Rhine-Main region. Of course, the variety of goods traded at the Frankfurt Fairs embraced the whole variety of medieval manufactured and semi-processed commodities as well as primary products, agricultural commodities and raw material.¹⁴ However, cloth and other fabrics in all stages of processing accounted for a considerable quota of the traded goods at large.¹⁵ Studying the purchases, therefore, yields information about the traded textiles and their quantity, quality and pricing; it also offers insights into the spending capacities and consumption patterns of the Nobility in central German in the time around 1500.¹⁶

Cloth Supply to the Fair-City Frankfurt

Cloth and fabrics from very different regions were transported to Frankfurt and redistributed across Central Europe and beyond.¹⁷ During the fairs, additional means were introduced to foster the buying and selling activities. Each city offering cloth at the Frankfurt Fair, for instance, coordinated its merchants at one certain house, where they used to live and work, so as to facilitate the establishment of a specific type.¹⁸ Much cloth arrived from the surrounding areas, since the whole region of the Upper and Middle Rhine Valleys as well as the adjacent areas in Hesse and Thuringia were textile-producing districts.¹⁹ From the 11th century onwards, written evidence about production and export of these '*Mittelrheinische Tuche*' increased continually. By the 14th century, 'Middle Rhine cloth' was sold from France to Hungary and from Italy to the Baltic Sea. In numerous cities and villages artisans and merchants were involved with the production and processing of woolsens, each place boasting its own distinct type and quality.

From a bird's-eye view, the Upper and Middle Rhine Valley and adjacent territories, with more than 80 production sites, some large and many more small of size, bore resemblance to a coherent cloth-producing province.²⁰ The white cloth from Friedberg (*Weißer Friedberger*) and the black cloth from Butzbach (*swarcz ducht*) are two prominent examples of this great variety of similar fabrics.²¹

The bulk of this Middle Rhine cloth was of mediocre and poor quality, showing all kinds of colours and weaves. There was demand for this fabric in cities and in the countryside, at noble courts and in monasteries.²² The commercial dissemination of the locally produced woolen cloth marked one of the essential features of the Frankfurt Fairs in its early days. Also in the fair's late medieval heyday, this fabric continued to be an important component of the product range on offer.²³

Of course, late-medieval cloth production within the Holy Roman Empire was not limited to the Middle and Upper Rhine Valley. Cologne and the Lower Rhine Valley housed numerous workshops where cloth was manufactured to an extent quite similar to the production rates in the Low Countries adjacent to the west.²⁴ The same is true for the entire region between Maas and Rhine, for Lorraine and Alsace, for Luxemburg and the Mosel-region.²⁵ Cloth from all these regions, which were not separated by clear demarcation lines, found its way to the fair-city. Conversely, merchants and artisans from all these regions visited the Frankfurt Fairs to provide the workshops scattered throughout the region with wool.²⁶ There is evidence of such wool shopping trips to Frankfurt for merchants from many places or the Maas-Rhine region, from Luxemburg and Lorraine. As a marketplace for all kinds of goods, wool and other raw or semi-processed materials had their share in the goods available at the fair.

More explicitly, the international feature of the fair-city is revealed by its role as an international trading hub for woolen cloth stemming from the cloth-manufacturing regions in

northwestern Europe.²⁷ Strong modifications had changed the structure of this traditionally highly-developed proto-industrial belt between the southern Low Countries and England by the 14th century.²⁸ Hitherto successful production sites had lost their clout; others had emerged and taken the lead.²⁹ In particular, the scale and efficiency of England's wool industry increased dramatically, which did not go unnoticed in the countries east of the Rhine.³⁰ The anonymous author of the still unpublished *Handbuch des deutschen Kaufmanns* (*Manual of the German Merchant*), which was written in 1511, ranked the *Lundisch Tuch* (London cloth) at the top of his list of textiles available at the fairs in Frankfurt.³¹ With respect to its quality and size, the manual reads:

The London cloth is mostly brought from England, but is often made in Brabant as well. However, the best comes from England and one sells it in Frankfurt by the piece, but they do not have one length. Then one dyes them all and when one has the same measure, he pays for it and one figures 40 ells for one piece and in Nuremburg 32 and in Augsburg 36 ells and when one piece has more or less, then one pays the same [...] There is also one much better than the other and especially those, where the (raw) wool was dyed directly in England are worth more money than those, where the cloth was dyed in Brabant. And they have no particular mark, except sometimes a steed on a seal and on the other side England and therefore everyone can tell what he buys, since there is a big difference therein, so that a cloth of one guilder to 10 guilders, one can be better than the other; so act in accordance with that.³²

Obviously, according to medieval textile terminology, London cloth did not exclusively refer to cloth produced in London or England. As an all-inclusive term, the name could be used for cloth of varying quality and price, processed in different territories, be it Brabant, Flanders or England itself.³³ After the sharp decline of the Champagne Fairs in the decades around 1300, the fair-city of Frankfurt became one of the most significant trading sites as the linkage between the North and the Mediterranean cloth markets. As a consequence, hosts of merchants from the Lower Rhine area,

from cities such as Cologne and Aachen, as well as people from Brabant, Flanders and the Low Countries travelled regularly to the trade fair on the Main.³⁴ Caravans of traders arrived from the main urban centres such as Brussels or Bruges and other towns in Brabant and Flanders.³⁵ Fabrics from northwestern Europe kept their overall status as the 'good cloth', '*das gute Tuch*', despite structural changes within the region and the varieties of exported cloth. Imports from northern France, however, came to an end, while the share of English fabrics increased sharply from the 13th century onwards. Within the Low Countries, the South kept its position and the North gained additional importance.³⁶

The fair in Frankfurt never became an insurmountable hindrance for itinerant merchants. People from the Lower Rhine and the Low Countries continued to make their way to southern Germany and beyond, while southern German tradesmen did their business in Cologne or Flanders – and from the mid-15th century onward at the soaring Antwerp Fairs where they purchased English and Brabantian cloth for the German and Italian market.³⁷ Needless to say, Italian merchants continued to live and work at the most attractive commercial centres all over Western Europe, and some of them also came to Frankfurt and its fair.³⁸ However, the cloth market at the Frankfurt Fair supplied a huge quantity and range of regional or foreign commodities, not to be found in smaller markets or production sites. Given the opportunity to assess the whole variety of available qualities and prices at one place, many merchants gladly renounced the exhausting journeys to end-consumers far away and preferred instead to do their business of buying and selling at the trade fairs on the Main.

Noble Customers at the Frankfurt Fair

The bulk of intermediary business in the fair-city was executed by professional merchants, who from time to time were actively involved in the manufacturing process as well. Much research has been carried out on the medieval merchants' entrepreneurial spirit

and their innovative skills and techniques. Less work has been done on behalf of the final consumers. Their contribution, however, was one reason for the Frankfurt fair's success. Many people visited the fair with the intent to buy local and foreign cloth at a good price. Besides burghers, merchants and artisans of nearby cities and villages, noblemen and their employees from far and wide played a crucial role as well-funded buyers of all kinds of commodities, especially cloth and other textiles.³⁹ Their share in the purchase activity process could easily be overestimated due to the rich documentation still extant. The accounts of record keepers, scribes and clerks at noble courts survived in noble archives to a much larger extent than the written legacies of merchants or private households did.⁴⁰

In spite of this distortion of transmission, noble consumers were undoubtedly a considerable part of the Frankfurt cloth market. The sheer number of noble customers whose legacy of records firmly echoes their commercial activities at the fair is evidence of this. Many noble houses and ecclesiastical institutions from the immediate vicinity, such as the counts of Ysenburg, the counts of Hanau, the counts of Nassau, the counts of Katzenelnbogen and the archbishop of Mainz satisfied their demands at the fair. The supply of high-end and cost-effective products also attracted noble customers from a distance. There is evidence of the shopping activity of the dukes of Bavaria, the counts Palatine, the dukes of Saxony, the dukes of Jülich and Berg, the counts of Württemberg, the counts of Zweibrücken, the counts of Wertheim, the archbishops of Trier and Cologne as well as the bishops of Speyer and Basel. Even the German king obtained a bargain at the fairs in Frankfurt from time to time.⁴¹

The account books of the noble households, composed and extant in varying amplitude,⁴² help us to assess the volume of their acquisitions. In addition, this source material offers an insight into consumption habits which in turn determined the demand at the Frankfurt Fair and other fairs at the end of the

Middle Ages. Of course, the Landgrave of Hesse and his peers could purchase commodities unaffordable to the average urban or rural household. Yet the nobility's conspicuous consumption was not only a means of showing and upholding one's rank with respect to peer rivals but also had a strong impact on the behaviour of non-noble classes and their strife for social distinction. Due to changes in financial administration and accountancy in the second half of the 15th century,⁴³ the acquisitions of noble families, such as the Landgrave of Hesse and the counts of Ysenburg, can be closely followed during this period.⁴⁴ Given the late medieval nobility's sophisticated lifestyle, their shopping basket contained a great variety of high-end products and a large quantity of household products. To provide the kitchen with adequate resources, their employees carried goods such as oriental spices, butter, vinegar and live oxen from the urban market place in Frankfurt to the castles and residences of their lords. Amongst all comestible goods, wine always held a special place and was continuously transported to the nobility's wine cellars in huge quantities.⁴⁵ When violent conflicts were looming on the horizon, the purchase list was adjusted and armour, weapons and saltpeter for gunpowder were stocked.

The highest single expense, however, was textiles in various forms and for various functions, ranging from the luxurious garments of the noblemen's families and their horses to the furnishing of castles and residences to the outfitting of employees with garments and uniforms.⁴⁶ According to the principle that social hierarchy was made manifest through dress code befitting one's rank, much care was dedicated and much expenditure was made in order to select the most appropriate fabric, cut, colour and accessory.⁴⁷ Keen on displaying their wealth and status, noble customers had a preference of buying luxurious fabrics, such as Italian silks of varying weave and cloth from England or the Low Countries, known as the '*Lundische Tuche*'. Expensive fabrics were not only in high demand at the courts where many people of

different social status lived together. Apart from silk and high-end cloth, there was also steady demand for fustian from Augsburg and Ulm, which was low and medium quality cloth hailing from the Lower Rhine provinces or cloth from small towns in the Hesse province such as Herborn, Usingen, Friedberg and Butzbach. In the years from 1476 to 1500, the landgraves of Hesse used to spend 40% of their entire income at the semiannual Frankfurt Fairs in the spring and autumn.⁴⁸ Seventy percent of this amount was required for the purchase of woolen cloth.⁴⁹ The landgrave or rather his employees regularly frequented the same merchants whose goods and prices apparently met the noble buyer's expectations (Tables 14.1–14.3).

<i>Year</i>	<i>Total Fair Expense</i>	<i>Autumn Fair</i>	<i>Spring Fair</i>
Aug 1476–Aug 1477	5905	1030	1375
Aug 1477–Aug 1478	4837	663	1618
Aug 1478	2937	618	1251
Jan 1485–Jan 1486	10,767	–	–
Jan 1486–Jan 1487	13,977	3110	1572

Table 14.1. Expenses of the Landgraves of Hesse at the Frankfurt Fairs, 1476–1500 (in fl. rh.). See Rothmann 1998, 503; 2011, 129. For some expenses 1514–1517 cf. Westermann 1978, 261. For the Landgraves' shopping expenses around 1600 cf. Westermann 1978, 262–263.

Within the period from 1500 to 1567, the share of expenses spent by the landgraves of Hesse at the Frankfurt Fairs made up to between 15% and 32% of the family's total budget. The peak of the fair expenses was reached in 1541 when 23.868 fl. rh. were spent in one single year.

Interestingly, the nobility used the Frankfurt Fair not only as a marketplace to replenish their stock of comestibles and commodities, but also as some sort of clearing centre where financial transactions were made. Outstanding accounts were

settled, loans were repaid and new ones were fixed.⁵⁰ Needless to say, the purchase of goods and the clearing of accounts normally went hand in hand, sometimes even executed by the same merchants and money-lenders. This is why the nobility's engagement at the fairs illustrated both their consumption habits and their financial capacities. What is more, the additional money which needed to be spent in light of transactions costs due to the purchase of commodities at the Frankfurt Fairs was of a remarkably small size.⁵¹ There were fees for each purchase, for packaging and transport. Each commercial transaction between the vendor and buyer had to be arranged and mediated by a broker (*'Unterkäufer'*) who charged a fee for the engagement. The number of these brokers was controlled by the Frankfurt City Council. According to the supremacy of the textile sector, the highest number of brokers was active in this field. In 1406, for instance, 177 brokers – 86 of whom did not hail from Frankfurt – were responsible for a smooth execution of the textile business.⁵² Despite the sheer number of different tolls, taxes and fees, the share of these additional expenses in the total purchase costs were very minimal, accounting for roughly 1–2%.

Years	Total Expenses	Fair Expenses in total	%	Autumn Fair	Spring Fair	Cloth	Family	Kitchen	Rest
1500	–	–	–	–	3380	1684	880	659	157
1501	–	–	–	–	2170	800	852	268	250
1502	23,077	3562	15.44	–	3175	1957	439	551	250
1514	16,226	2717	16.74	1248	1469	1888	274	311	244
1515	16,391	–	–	1193	1885	1815	183	434	646
1516	–	–	–	1181	2323	2067	874	306	257
1517	–	–	–	1942	2409	2333	1117	576	325
1519	–	–	–	1442	2944	2402	248	1168	568
1520	–	–	–	2356	2584	2939	1020	610	371
1527	–	–	–	3902	5589	3728	3892	768	1093
1528	–	–	–	–	7218	2186	218	790	4024
1529	–	–	–	–	4676	3231	238	429	778
1530	–	–	–	3000	–	–	–	–	–
1531	–	–	–	–	3000	–	–	–	–
1536	48,195	10,406	21.59	5618	–	–	–	–	–
1537	54,974	8737	15.89	4676	4788	–	–	–	–
1538	70,585	11,275	15.97	4707	4061	–	–	–	–
1539	56,554	12,445	22.01	6016	5705	–	–	–	–
1540	50,488	12,469	24.70	6309	6429	–	–	–	–
1541	74,583	23,868	32.00	8012	6160	–	–	–	–
1542	45,703	14,231	31.14	7302	5042	–	–	–	–
1543	–	–	–	–	6929	–	–	–	–
1544	–	–	–	14,226	–	–	–	–	–
1545	–	–	–	7299	–	4135	1362	567	1235
1546	36,130	6025	16.68	7333	–	1937	1835	–	3561
1557	–	–	–	–	6685	4230	1200	500	755
1560	57,578	13,762	23.90	6009	–	3570	1609	265	565
1567	–	–	–	–	7138	6509	362	267	–

Table 14.2. Expenses of the Landgraves of Hesse at the Frankfurt Fairs, 1500–1567 (in fl. rh.). See Rothmann 1998, 503–504; 2011, 130–131

Period	Total Expenses	Cloth	Family	Kitchen	Rest
1500–1509	4755	2420	1184	806	345
1510–1519	3607	2101	539	559	408
1520–1529	8775	4031	1789	866	2089
1530–1539	9238	6467	1478	1108	185
1540–1549	13,517	6622	2973	676	3243
1550–1559	13,370	8460	2400	1000	1510
1560–1569	13,147	10,079	1971	532	565

Table 14.3. Average spending at the fairs over the decades, 1500–1569 (in Rhenish Guilders). See Rothmann 1998, 50; 2011, 131

The landgraves of Hesse were not the only noble customers at the Frankfurt Fairs who left behind a rich documentation of their commercial activities in the decades around 1500. The counts of Ysenburg, who ruled over a rather small territory in present-day southern Hesse, mainly located around the city of Frankfurt, not

only spent similar amounts at the fairs as the landgraves, but their fair accounts (*'Messerechnungen'*) as part of the Chamber Accounts (*'Kammerrechnungen'*) yield an astonishingly detailed insight into consumption habits and financial behaviour of a noble family.⁵³ Again there is evidence for the whole range of commodities on sale at the fairs. The counts' court was provided with cloth for summer and winter garments, with spices for the kitchen and with horses for its stables. Under the heading 'Kitchen' (*'Küche'*) a great variety of spices such as saffron, ginger, clove, pepper, raisins, sugar, nutmeg and others are mentioned as well as other comestible goods such as butter, stockfish, wine and more.⁵⁴ Before sending their employees to the fairs, the Ysenburg chamber scribes regularly composed an estimation of costs. After the purchase activities had come to an end, the scribe noted down the expenses for clothing, meant for the domestic staff, for instance, in the central chamber register. Simultaneously, he marked this very same purchased cloth as an asset in the sartorial accounts. As in the case of the landgrave, the expenses for cloth constituted the main single element within the budget. Not surprisingly, the courtly representation followed similar patterns (Table 14.4).

Again, a lot of money was spent on a variety of woollen cloth: among the cloth species mentioned in the Ysenburg accounts, fabrics from Friedberg, Steinau, Windeck, Limburg, Mecheln, Brügge, London, Niclasport and Morichen can clearly be identified.⁵⁵ All cloth-producing provinces from Frankfurt's vicinity to the Low Countries and England appear on this list, thus yielding evidence that the counts of Ysenburg were as keen as the landgraves of Hesse to benefit from the regional and international range of products available at the Frankfurt Fairs. No wonder, then, that the prestigious *'lundische tuche'* took the lead in terms of quantity and price. In addition to woollen cloth, fustian from Augsburg and Ulm and linen, silk and yarn from Cologne ended up in the hands of the counts' dressmakers. Like the landgraves of Hesse, the counts of Ysenburg were willing to spend a

considerable share of their budget on these textile varieties, which constituted an essential foundation of courtly representation in later medieval and early modern times.

Summer and winter clothes had to be tailored with these hosts of different fabrics. After each visit to the fair, the Ysenburg officials marked the expenses for cloth and textiles as liabilities into the central accounts. The same amount, however, was recorded as an asset in the sartorial accounts (*‘Schneidereirechnungen’*). In these accounts, drafts of the summer and winter garments were made as well (Figs 14.1 and 14.2). As usual, no original remnants of the original garments are extant, but in cases where designs and sketches of certain garments can be traced, an insight into the way the counts of Ysenburg and their retinue dressed in public at the threshold of a new era can be obtained – at least as paper sample.⁵⁶

Date	Revenue	Money	Tailoring	Kitchen	Family	Horses	Artisans	Total
1472	–		133	59	66	–	–	258
1473	–	110	72	57	57	–	–	296
1475	1228	250	151	106	45	33	27	612
1476	1439	266	134	147	–	121	34	702
1477	4135	300	150	124	–	45	–	619
1488	342	–	251	91	–	–	8	350
1491	428	–	88	101	176	50	–	415
1503	590	–	244	239	148	–	–	637
1504	700	–	296	245	185	–	–	726
1509	1011	–	237	371	132	60	11	811
1511	–	–	54	239	113	–	–	406
1513	–	826	169	334	123	–	–	832
1514	–	–	301	353	107	–	86	847
1514	–	–	284	258	157	–	41	740
1516	–	–	349	357	198	–	27	931
1520	–	–	–	–	–	–	–	609
1520	–	512	–	–	–	–	–	495
1521	–	478	157	67	25	–	–	472
1521	–	436	209	127	32	–	–	385
1522	–	671	210	157	36	–	–	515
1522	–	400	198	187	36	–	–	458
1523	–	494	217	187	53	–	–	508
1524	–	–	–	–	–	–	–	908
1524	–	458	185	181	43	–	–	502
1525	–	–	–	–	–	–	–	519
1525	–	540	216	186	56	–	–	540

Table 14.4. Revenues and expenses of the Counts of Ysenburg at the Frankfurt Fairs, 1472–1525 (in fl. rh.). See Rothmann 2011, 133–134. For the list’s headings: ‘Revenue’ are mostly cash money from the Counts

or payments from the Counts' officials. 'Tailoring' encompasses all sorts of cloth and textile purchases. Under the heading 'Kitchen' mainly comestibles and spices are included. 'Family' stands for personal expenses of the Ysenburg family. 'Artisans' is expenditure for orders to Frankfurt artisans.

The sartorial accounts of the counts of Ysenburg illustrate the final usage of some of the cloth and other fabrics which were transported to the Frankfurt Fairs by merchants from both near and far. In the later medieval and early modern times, the fairs on the Main asserted their position as a commercial and financial centre in Central Europe.⁵⁷ The range of commodities and financial services on offer were evidently plentiful throughout the centuries. Among the goods available, woollen cloth manufactured in the nearby cloth-producing Rhine provinces or imported from the Northwest was a key commodity, in demand by merchants, burghers and noblemen in equal measure. Certainly, quality and price had to comply with the respective budget capabilities. That's why many different kinds of cloth were supplied to the Frankfurt Fairs where the variety on display was a mirror of the social structure of pre-modern society with all its ranks and orders. There were people such as the Protestant preacher Andreas Meusel who deplored this aggregation of all sorts of textiles in Frankfurt and condemned it as Germany's economic decline because *'alles Geld aus Deutschland nach fremden Nationen ginge'*.⁵⁸ But of course, these critical voices had little impact on supply and demand at Germany's most important cloth market.



Figure 14.1. Summer Dress. Sartorial Accounts of the Counts of Ysenburg 1550. Fürstlich Ysenburg- und Büdingen'sches Archiv.



Figure 14.2. Winter Dress. Sartorial Accounts of the Counts of Ysenburg 1547. Fürstlich Ysenburg- und Büdingen'sches Archiv.

The nobility was certainly not the only and perhaps also not the most important group of buyers at the Frankfurt Fair. However, due to the outstanding condition and amplitude of written records still available in the private archives of the Ancien Regime's nobility, a closer scrutiny of these noble families' commercial and financial activities at medieval and early modern marketplaces can yield some prolific insights into consumer behaviour in pre-modern times, a topic which has attracted a great deal of historical interest in recent years.⁵⁹ In light of this, with regard to the Frankfurt's fairs, one can conclude that these markets were abundantly well-stocked marketplaces where pre-modern shopping behaviour could be mirrored at all its stages from gross supply to final usage.

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15. The Missing Link: The Distribution Revolution of the 15th Century

Stuart Jenks

Jean-Baptiste Say, the 18th century French economist, has a lot to answer for. Not only did he coin the term *entrepreneur*, he also formulated Say's law, the theory that supply creates its own demand.¹ This has led many economic historians to ignore the problem of the distribution of goods, although it is one of the two central problems of economics. Build a better mousetrap, so the thinking goes, and the world will, in fact, beat a path to your door.

Scholars who study the Consumption Revolution of the long 18th century (c. 1650–c. 1850) are particularly guilty of this sin of omission. The reason for this, of course, is that the Consumption Revolution has been investigated almost exclusively by social historians² who are not terribly interested in economics. The result is that, when we read the scholarly literature, we see all the exotic goods – tea, tobacco, Indian cottons and so forth – as they arrive on the quayside and as they are sold in local shops or by country peddlers. But how the tea got from the quayside into the teapot is an unsolved problem.³ And I think that it is an important one. After all, it doesn't make much sense to get consumers hooked on tea or rum if you cannot supply their cravings on a regular basis.⁴ So the success of the Consumption Revolution presupposes a reliable supply chain. And that is what I want to demonstrate.

My working hypothesis is that there was a Distribution Revolution in 15th century north-western Europe, one which

provided the essential pre-condition for the Consumption Revolution. In the course of the Distribution Revolution, the path which a particular good took from the producer to the consumer became much less random, as markets were linked to one another, forming a fairly stable hierarchy running from the great international fairs like Antwerp, Frankfurt, or Leipzig through their satellite fairs (Nördlingen for Frankfurt, Naumburg for Leipzig), the 'yearly markets' held in smaller towns (often enough several times a year) down to the weekly markets and the humble peddler trudging along country roads. This vertically integrated system distributed goods coming from overseas to local consumers and collected products from the countryside, feeding them into the regional and international markets. When exotic products entered the picture in the 17th century, the distribution routes were fairly clear.

I

For those not conversant with the Consumption Revolution, let me sketch out what its acolytes have in mind when they talk about it. Most of their research has gone in to identifying the leading characteristics which mark off the Consumption Revolution of the long 18th century from the previous period, which is generally taken to have ended around 1650.⁵ This revolution brought about a fundamental commercialisation of society. Its characteristics are three:

- First, an explosion of spending by people of the middling sort on non-essential items, so that a rapidly expanding number of consumers bought an ever broader range of goods which were not necessary for maintaining human life. These non-essentials can be broken down into three groups: (1) exotic colonial goods like coffee, tea, sugar, rum and tobacco; (2) creature comforts and baubles like bed linen, crockery and cutlery, bright cotton clothing, stylish furniture and pocket watches; (3) adornments for the body like scarves, ribbons and handkerchiefs.
- Second, the emergence of fixed shops, increasingly decorated to

encourage buying from a specifically targeted group of customers.⁶ Between 1650 and 1750, shops and itinerant pedlars with a broad assortment of goods on offer replaced markets, fairs and guild-controlled producer-retailers as the source of merchandise for consumers.⁷ As time went on, shopping districts began to emerge, and they were the first beneficiaries of such urban amenities as street-cleaning, street-lighting and 18th century civic improvement schemes.⁸

- Third, the emergence of a completely different relationship between consumers and retailers, so that fashion determined consumer choices and retailers began to market their goods aggressively. They invented the shop window, they advertised in newspapers and on trade cards and shop bills⁹ and they entertained their customers with tea and elegant conversation before getting down to business. Shopping became a gracious leisure pursuit, particularly for ladies,¹⁰ and their conversations with shopkeepers constituted a process of discovery, which allowed them to learn about new and fashionable products.¹¹

Jettisoning the third aspect – since the medieval sources tell us nothing about the relationship of customers to shopkeepers – and taking the other two aspects in reverse order, I want to highlight some critical problems and then talk about the Distribution Revolution in relation to the Consumption Revolution.

First of all: shops. I have grave difficulties agreeing with the early modernists that the fixed shop was a revolutionary development, unique to their period and the following centuries. My problems are three: the existence of pre-1650 shops, the range of goods in the shops and their decoration.

- The early modernists assure us that the rise of the fixed shop was fundamentally a phenomenon of the mid- to late 17th century,¹² even if there was the occasional late Elizabethan forerunner.¹³ However, more recent research has turned up an embarrassingly large number of shops in medieval and 16th century England and Flanders.¹⁴ Consider, as one small example, the shops along two obscure lanes in north-west London in 1612, as depicted in Ralph Treswell's survey of the lands belonging to the Company of

Clothworkers. There is, as the illustration shows, no break in the shops lining Cow Lane and West Smithfield other than entryways, although the area itself is far distant from the heart of commercial London. Consider these two unbroken rows of fixed shops from 1612: Just how revolutionary the fixed shop can have been in the mid- to late 17th century?

- The early modernists assure us that medieval shops tended to stock only one kind of merchandise, usually cloth, whereas the non-specialised shop offering a wide range of goods – typically a high proportion of textiles and haberdashery (with ready-made clothing coming to the fore in the 18th century), followed by grocery, ironmongery, stationery and spirits – was a revolutionary development of the late 17th century.¹⁵ However, the inventory of the goods in the shop of John Louth, who died in York in 1435,¹⁶ makes it difficult to maintain belief in a hard and fast distinction between medieval and early modern fixed shops. The range of goods in Louth's shop – textiles, haberdashery, grocery, ironmongery and stationery – is strikingly similar to what one would expect to find on the premises of his later colleagues. Moreover, an analysis of Louth's debts shows that he bought cloth and grocery from wholesalers, not from producers, and sold them at retail. In short, he looks very much like an 18th century shopkeeper who was born three centuries too early.
- Finally, the early modernists assure us that as soon as fixed shops appeared, they began to be decorated in order to attract just the right clientele and enhance the attractiveness of the goods on sale.¹⁷ Up-market shopkeepers like goldsmiths, drapers and china sellers spent large amounts of money on shop windows, interior decoration and display in order to create an identity for the shop and signal the quality of merchandise on offer. In particular, apothecaries are held to have been pioneers in shop design.¹⁸ However, the normal accoutrements of a mid-17th century apothecary's shop – standard size glass or ceramic jars displayed on shelves, counters for serving customers and mortars and pestles for mixing drugs – can be found in late medieval depictions of apothecaries' shops, for instance in the fresco in the Castello di Issogne (Val d'Aosta), painted around 1500: the only thing missing is the exotic blowfish over the counter.¹⁹ Just how new can shop decoration have been in the 17th century?

Now, the point of signalling the medieval forerunners of the early modern fixed shop is not to take earlier scholars to task for their short sightedness, but to emphasise the fact that the fixed shop of the long 18th century cannot possibly have been the big bang which set the Consumption Revolution on its path of unstoppable expansion. Like everything else which turned out, in the end, to be revolutionary, fixed shops had, in the beginning, to fit in to the pre-existing structures. And – unsurprisingly – they in fact did. Fixed shops show a marked tendency to crop up along the roads leading in to the market place in market towns.²⁰ But even then, the weekly market remained crucial. Shopkeepers did most of their business on market day, spending the intervening week packaging goods for retail sale.²¹ If a shopkeeper established a branch in another town in the 18th century, he was careful to assure his customers there that he would be in the branch shop on market day.²²

Now, some of these shop rows evolved into elegant shopping districts which, in the 18th century, benefitted from civic improvement, as the streets were cleaned, paved and lit, the medieval buildings either torn down or refaced to Georgian standard and the more noxious bits of the weekly markets – butchers, fishmongers and so forth – banished to trading halls on the edge of town lest they disturb more fastidious shoppers.²³ Once turnpiking picked up in the early 18th century, the toll roads first radiated out from the market towns and only then connected them to one another and to London,²⁴ which had functioned as a redistribution centre for imports since the 15th century,²⁵ when it first garnered more than 80% of English foreign trade, and which had enjoyed dedicated carrying services since the 1580s at the latest.²⁶

So the revolutionary development was not the rise of the fixed shop, but the survival of the market town in the course of the late medieval shake-out. Most markets which had been founded by royal charter before 1350 gave up the ghost, but some 800

survived. And this was what established the commercial geography of England until the advent of the railways. Everything else – shops, carrying services and turnpikes – simply responded to increased market traffic by improving the efficiency of the provision of goods to retailers and customers.

However, some markets were more equal than others. This led to a hierarchy of markets which was established – depending on whose side you take in the celebrated Masschaele–Britnell exchange – either by 1300 or between 1300 and 1520.²⁷ In any event, “demand for food and raw materials was becoming less diffused through the countryside, and both sales and purchases by rural producers were becoming more focused on a narrower range of mercantile centres served by a new structure of mercantile networking”.²⁸ But the narrowing of choice as to which market to attend is just the flip side of the emergence of a stable distribution system, one in which most foreign merchandise was landed in London and funnelled through secondary markets or wholesalers to retailers,²⁹ who from the 17th century either sold these goods in their shops or handed them over to dependant country pedlars for sale in the countryside.³⁰ The point is that everybody in the supply chain knew where to get supplies of a particular product,³¹ in short: who was the next fellow in the supply chain. The market economy had become a vertically integrated structure.



Figure 15.1. Shops (outlined in black) at the corner of West Smithfield and Cow Lane, London (1612). Image reproduced by courtesy of The Clothworkers' Company (London)

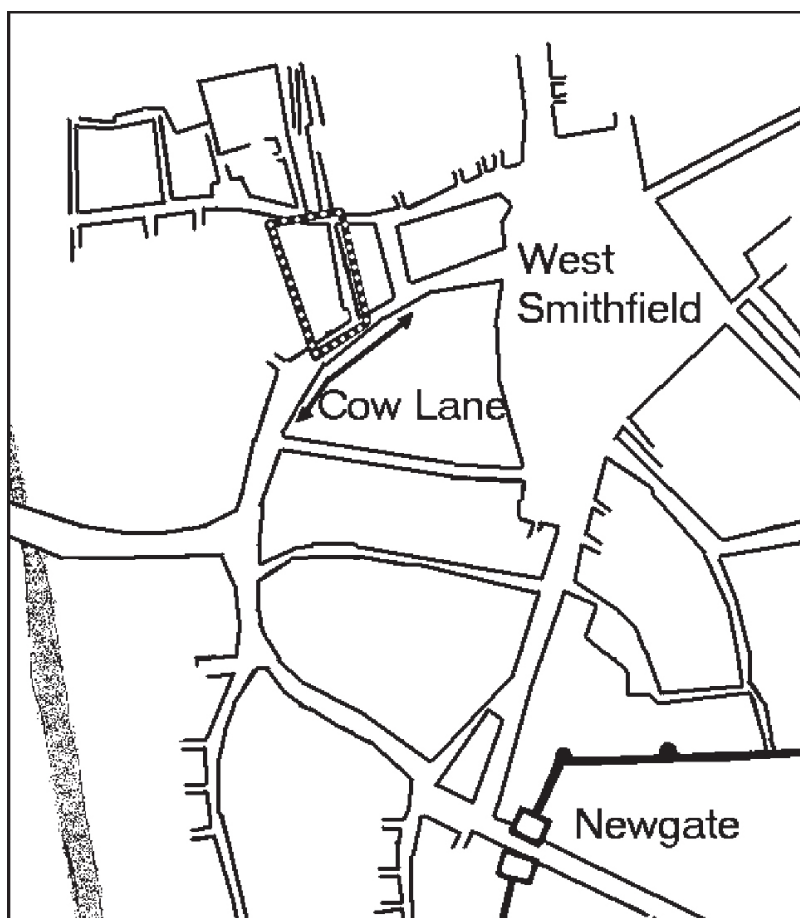


Figure 15.2. Location of the West Smithfield/Cow Lane area in north-west London

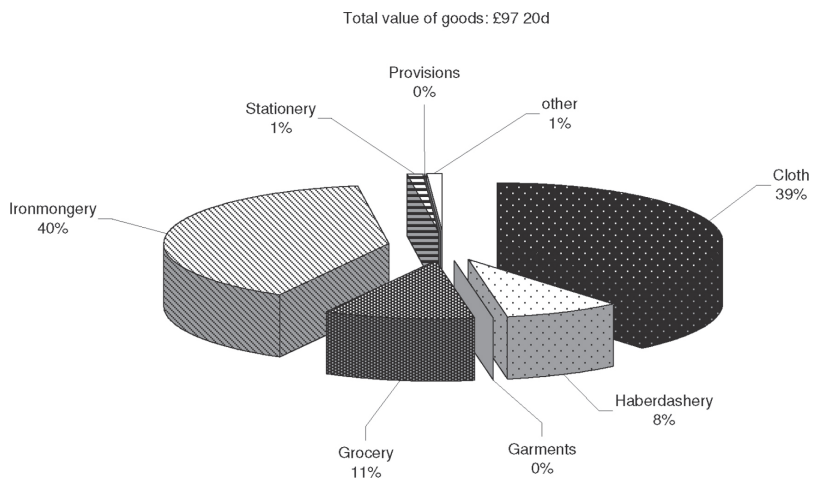


Figure 15.3. Inventory of John Louth's shop (York, 1435)



*Figure 15.4. Thomas Rowlandson, The English Dance of Death (1815).
Source: Combe and Rowlandson 1903, facing p. 74*



Figure 15.5. Fresco (c. 1500) in Castello di Issogne, Val d'Aosta by Donato Arcaro. Source: www.naturaosta.it/Proposte.htm. Permission to publish granted by Donato Arcaro

II

If the distribution network which I have just sketched was, in fact, in place, then we ought to be able to see it in operation when exotic colonial merchandise begins to flood in to England, ringing in the Consumption Revolution. I am going to focus on pepper, because it is the first such commodity to become an article of mass consumption.

When the East India Company was founded in 1600, it concentrated on competing with the Dutch in the spice trade.³² Of particular importance was pepper, which, in the early years, dominated all its other imports. The big City merchants who ran the company³³ saw to it that it was constituted as a joint-stock company with separate and terminable stocks financed voyage by voyage by distinct groups of shareholders.³⁴ That meant that as each fleet came in, the cargo was divvied up among the shareholders according to their stake in that particular voyage. The Company had nothing to do with marketing pepper in England or elsewhere, although it would warehouse the shareholders' stocks for them.³⁵

From a marketing point of view, the first voyage was a disaster. Just over a million pounds (453.6 tonnes) of Company pepper were landed in 1603, and these imports swamped the domestic market, which could absorb no more than 200–300,000 lb (c. 91–136 tonnes) annually.³⁶ Many shareholders, it was later recalled, took 6–7 years to move their stocks.³⁷

However, the irritation of the newly crowned monarch, who had been doing a little sly pepper dealing of his own and wanted to block competing sales, resulted in an exchange of letters between the Company and the Lord Treasurer which throws light on what the shareholders did with their pepper.³⁸ In November 1603, four months after the arrival of the first ship, the Company stated that its shareholders had already received their pepper and sold it to the London Grocers, who, in turn, had wholesaled it

onward, until it ultimately reached the chapmen in the countryside.³⁹

This answer was, of course, cunningly designed to thwart the schemes of James I. While it does tell us a lot about the efficiency of domestic distribution channels, it leaves the question of what happened to the rest of the pepper unanswered.⁴⁰ Nor did the problem become any simpler in the coming years: the Company's pepper imports always exceeded domestic demand by far, as the graph in [Figure 15.6](#) shows.

Clearly, only massive exports could solve the problem,⁴¹ and the Company duly grasped the bull by the horns. A gap in the Company's records makes it difficult to discern the details, but by 1609 at the latest the Company was encouraging exports of pepper to the Continent. When the *Dragon* arrived at Plymouth in October 1609 with over 400,000 lb (c. 181.4 tonnes) of pepper on board, the General Court decided to divvy it up, allowing stockholders to buy up to 50% more than their due and giving them a generous 18 months to pay for it, but hitting them with a 20% surcharge for any pepper they did not export.⁴² That set the pattern for the next years: the Company imported an average of just over a million pounds of pepper yearly, reserved a certain quantity for the Grocers for sale in England, and released the rest for export by shareholders.⁴³ And they had no qualms whatsoever about underwriting these stocks.⁴⁴ In 1615, indeed, they did so within 24 hours.⁴⁵ Clearly, they knew just what to do with the pepper.

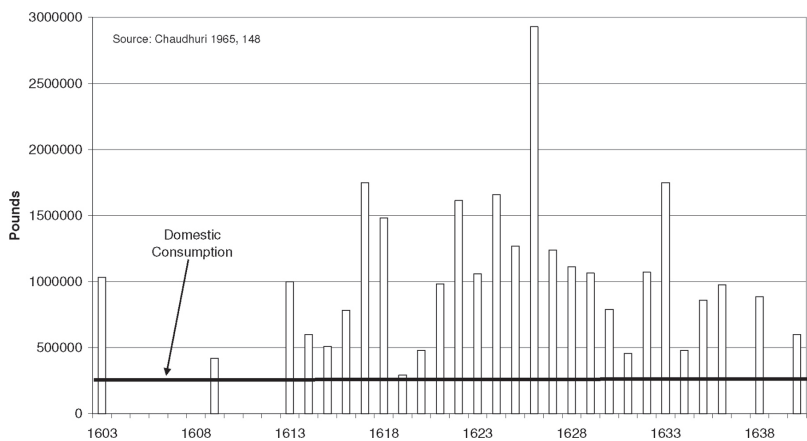


Figure 15.6. Pepper Imports, East India Company, 1603–40

So where were these massive exports destined? By the 1610s, shareholders had begun to export vast quantities of pepper to Hamburg, Danzig, Leghorn, Venice, Naples, Portugal, Constantinople and even Amsterdam (Fig. 15.7), and they were well aware of market trends in each of these centres.⁴⁶ Clearly, the shareholders knew, almost from the beginning and certainly without the slightest indication of any failed experiments, which continental markets were liquid enough to absorb vast quantities of pepper within a limited time.

But how could they possibly have known this? The answer is really very simple: this was not a new problem, and the Merchant Adventurers had already found a solution. For decades they had been exporting ever-increasing amounts of cloth to the continent, principally to Antwerp.⁴⁷ The fairs held there at Pentecost and in October (St Bavo) were able to absorb huge exports of cloth and provide return cargoes, especially from Central Europe, but also from further afield. Finally, Antwerp's flourishing cloth-finishing industry drew in enormous imports of undressed English cloth.⁴⁸ But from the mid-1560s onwards Antwerp was no longer viable as an outlet for English cloth.⁴⁹ Various stop-gap solutions were essayed,⁵⁰ but only Hamburg met the bill. Its market was large enough to absorb large amounts of English cloth, particularly since the trailhead of the track along which the wagon trains headed to South Germany lay just across the Elbe at Harburg (Fig. 15.8),⁵¹ so that Hamburg served as a gateway to the Central European market.

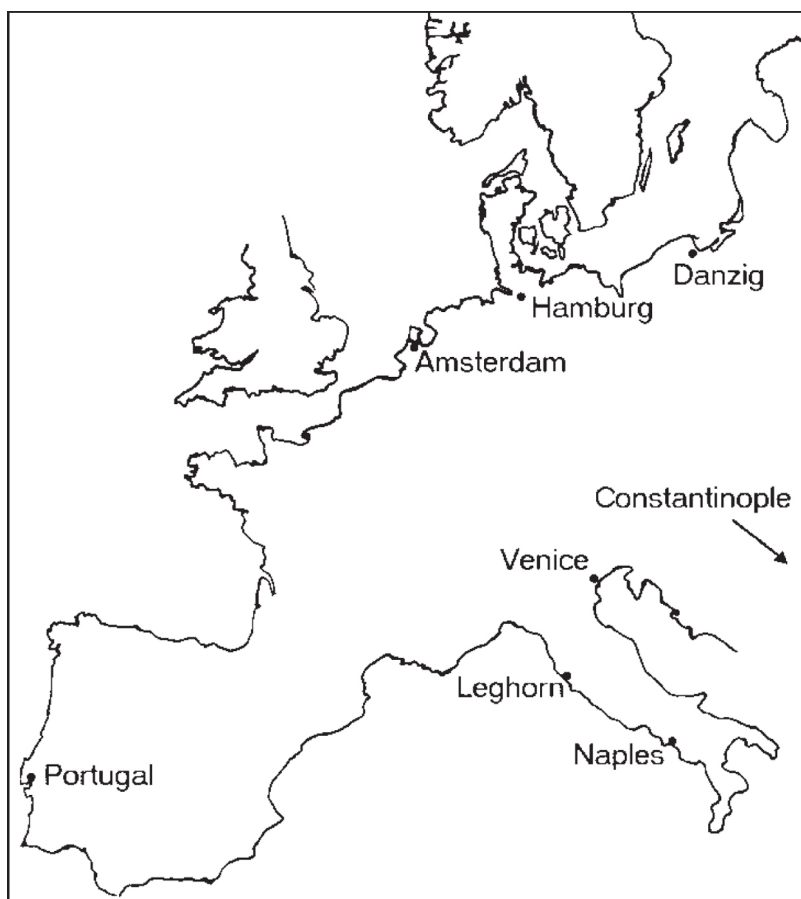


Figure 15.7. The East India Company's export markets.

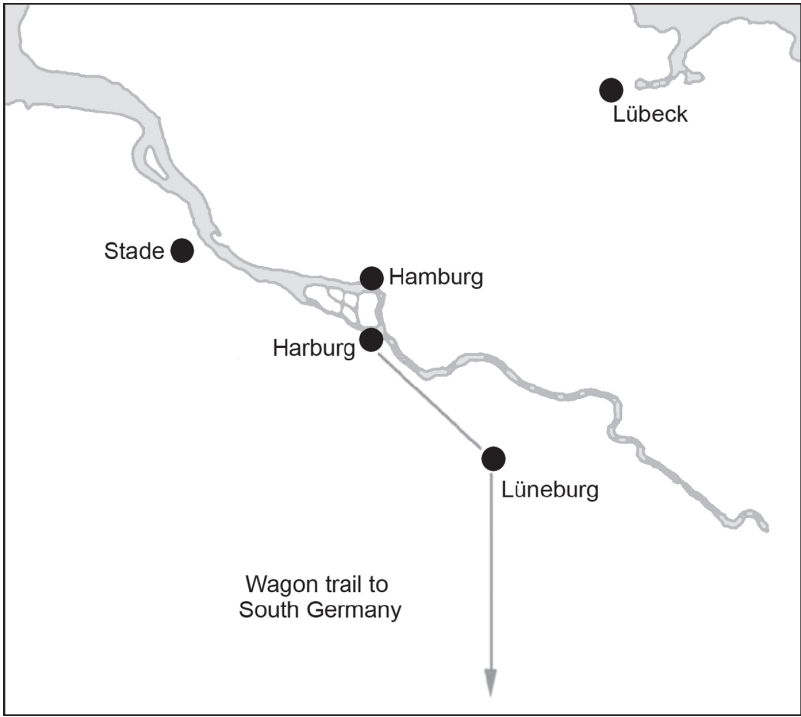


Figure 15.8. Hamburg and the Merchant Adventurers.

Hamburg also had a flourishing cloth-finishing industry, a notable point in its favour,⁵² particularly since its native workforce had been augmented by Calvinist artisans from Antwerp seeking refuge from the Spaniards.⁵³ Finally, the return cargoes available to the Merchant Adventurers in Hamburg were perhaps not perfect, but the range of products was certainly better there than elsewhere.⁵⁴ It was no wonder, then, that – in cooperation with the monarchy – the Merchant Adventurers initiated negotiations with Hamburg⁵⁵ and, in 1567, obtained a charter which granted them slightly better rights than they had had in Antwerp.⁵⁶ However, this privilege concluded with a sunset clause, which stipulated that it would lapse if not renewed at the end of its ten year period of validity.⁵⁷ This exposed Hamburg to intense pressure from the other Hanse towns, who hoped to restore Hanseatic rights in England – suspended in 1552⁵⁸ – by denying the English a foothold in Germany.⁵⁹ This Hanseatic pressure forced Hamburg to let the Merchant Adventurers' charter lapse in 1577, leaving the English with a year to vacate Hamburg and find another staple.⁶⁰

Emden, the first town to which they repaired, proved unsatisfactory,⁶¹ and the Merchant Adventurers found themselves yearning to return to Hamburg. From 1580, these desires fell on increasingly fertile ground.⁶² However, pressure from the other Hanseatic towns was just sufficient to scuttle the idea of a return to Hamburg,⁶³ so that negotiations failed (1587). Instantly, Stade – just down river from Hamburg – granted the Merchant Adventurers a charter, modelled on the Hamburg privilege of 1567 and valid for ten years.⁶⁴ Although Stade joined Middelburg as a staple of the Merchant Adventurers, at which they were required to land their cloth exports, it in fact functioned as an outpost of Hamburg.⁶⁵ Not even the mandate of emperor Rudolf II (1597), prohibiting all imperial estates from admitting the Merchant Adventurers to reside and trade anywhere within the Empire and

his subjects from doing business with them, had much effect,⁶⁶ although the Merchant Adventurers were forced to close down their official organization in Stade. The reason is that the mandate proved to have a huge loophole. Since it was directed at the Merchant Adventurers as an organisation, alleged to be a monopoly illegal under imperial legislation,⁶⁷ it was simple enough for the English to deny that they were trading as Merchants Adventurers, even if they were members of the company.⁶⁸ Furthermore, the mayor of London (a former governor of the Merchant Adventurers) most accommodatingly certified that cloths destined for Stade did not belong to any member of the Merchant Adventurers.⁶⁹ Hamburg itself winked at imports of English cloth, whether landed in Stade or brought directly to Hamburg.⁷⁰ Moreover, the emperor himself licenced numerous exceptions to his own mandate in order to raise money.⁷¹ Finally, when Queen Elizabeth granted the Earl of Cumberland a freely transferable, ten-year licence to export an unlimited quantity of unfinished cloths (1601) and the Merchant Adventurers reached an agreement with Cumberland that he would only sell sub-licences to members of the Company (1602),⁷² anyone exporting cloth could pretend to be merely an agent of the Earl. Together, these machinations undermined the imperial mandate to the point where it was senseless to try to keep the English out. Consequently, in 1607 Rudolf himself confirmed the right of the Merchant Adventurers to establish a formal, corporate residence in Stade, which in effect meant that the staple was re-established in all but name.⁷³ A few years later, in 1611, a little gentlemanly blackmail on the part of the Merchant Adventurers (who threatened to succumb to the blandishments of king Christian IV of Denmark and remove their staple to Krempe, a tiny town on the north bank of the Elbe under Danish suzerainty)⁷⁴ sufficed to convince Hamburg to defy Lübeck and the rest of the Hanse, contact the Merchant Adventurers and do a deal as quickly as possible. Its charter, dated 28 June 1611, granted the Merchant Adventurers

slightly better rights than they had had since 1567.⁷⁵ They remained in Hamburg until Napoleon marched in.

Although Hamburg was not the Merchant Adventurers' staple between 1578 and 1611, contacts must have been substantial, since the Company continued to export vast amounts of cloth to Hamburg (albeit via Emden or Stade) despite the imperial mandate of 1597. In 1597/98, for instance, Merchant Adventurers exporting to Germany accounted for 59.8% of all London cloth exports (105,510 shortcloths).⁷⁶ More broadly, Baumann estimates exports of 30,000 to 60,000 shortcloths per annum to Stade between 1597 and 1603, and 40,000 to 60,000 shortcloths annually to Stade in the years 1601 to 1606.⁷⁷ Finally, in 1606, the Merchant Adventurers exported 55,858 shortcloths to Stade.⁷⁸ Contacts between the Merchant Adventurers and continental merchants, principally those from Hamburg and the Low Countries who had emigrated (and taken citizenship)⁷⁹ there, must have been substantial to have afforded the sale of such a vast quantity of cloth.⁸⁰ Of those known to have dealt in English cloth in these years, Hamburg merchants were always substantially represented (around half of all purchases), even if merchants from other Hanseatic towns, Leipzig and South Germany were active in the trade.⁸¹ Indeed, we know of a number of Hamburg merchants who acted as factors, freight and commission agents for the Merchant Adventurers, selling their cloth on their account and purchasing return cargoes for them.⁸² It is surely no exaggeration to say that the Merchant Adventurers were very well informed indeed about the Hamburg market and the Central European markets which it served. This information was of crucial value to the East India Company when it began to think about which continental markets were liquid enough to absorb vast quantities of the pepper they had begun to import in 1603. The East India Company did not have to go to great efforts to discover this, for a significant number of its founding members had been active as Merchant Adventurers. Of the Merchant Adventurers' 47 largest exporters of

cloth (i.e., shipping more than 1000 shortcloths) in 1606, 30 had invested in the East India Company in 1599 (63.8%).⁸³ To make the same point the other way around, of the 574 founding members of the East India Company, 60 were also Merchant Adventurers (10.45%). Their investment (£13,480) amounted to 21.47% of the total.⁸⁴ These merchants were the source of the expert knowledge of market liquidity and trends which enabled the East India Company to direct its exports of pepper unerringly to Hamburg.

Danzig was quite similar to Hamburg, also being a town in which English merchants had no official presence but whose market they knew very well. When it was founded by royal charter in 1579, the Eastland Company was granted a monopoly of all trade by English merchants in the Baltic east of the Sound,⁸⁵ with the exception of Narva, which was reserved to the Russia (Muscovy) Company (Fig. 15.9). The coast and hinterlands between Lübeck and the mouth of the Oder were to be shared with the Merchant Adventurers, who had exclusive trading rights in Hamburg, but the Eastland Company enjoyed the right of free transit for its goods between Hamburg and the Baltic.⁸⁶ In addition, the charter granted the Eastland Company the right to take action against English merchants who violated its monopoly.⁸⁷ In order better to enforce its monopoly against these interlopers, the Company immediately began negotiations with Elbing (Fig. 15.10), whose monopoly on Polish exports had been proclaimed by the Polish king Stefan Batory in 1577.⁸⁸ Despite furious opposition from Danzig (which resented the transfer of trade to its smaller rival) and the Hanse (which hoped to restore its rights in England by denying the English a foothold in any Hanseatic town), negotiations⁸⁹ eventually led to the granting of a charter (1585) by the mayor of Elbing which contained generous rights for the English, notably the right to trade directly with other foreign merchants, but was conspicuously circumspect when the rights of the king of Poland, Elbing's suzerain, were involved.⁹⁰ In

particular, the clause in Elbing's abortive charter of 1583 for the Eastland Company, designating Elbing as the exclusive staple for all English imports into Poland, was dropped.⁹¹

Elbing's status as the sole entrepôt of English trade was therefore murky. While Elizabeth's charter empowered the Eastland Company, and in particular its deputy governor, resident in Elbing, to take action against all English merchants in its trading area who violated its monopoly⁹² and the Privy Council had, on 27 Jan. 1580, required all English ships sailing to the Baltic from London, Hull, Newcastle, Ipswich and Lynn to unload their cargoes nowhere else than Elbing,⁹³ the charter remained resolutely silent on the question of exports from Poland to England. Not only could English merchants legally load return cargoes for England anywhere in the Baltic, the Sound toll registers demonstrate that they in fact did so.⁹⁴ Moreover, nothing in Elizabeth's charter or Elbing's privilege specifically required English merchants to land their inbound cargoes in Elbing, and in practice, the Eastland Company was not overly energetic in enforcing its rights against interlopers. Its success was correspondingly modest.⁹⁵



Figure 15.9. English trading companies' monopolies in the North Sea and the Baltic.

The upshot was that Danzig did a roaring trade with the interlopers. Not only was its harbour more convenient for shipping than Elbing's,⁹⁶ its infrastructure was generally better,⁹⁷ and its market, particularly for finished English broadcloth and northern kersies (not to mention exports such as naval stores and grain),⁹⁸ was incomparably superior to Elbing's.⁹⁹ Finally, Danzig's town fathers encouraged the English trade.¹⁰⁰



Figure 15.10. The Eastland Company in the Baltic.

Overwhelmingly, the Eastland Company's exports consisted of finished cloth.¹⁰¹ In 1597/98, for instance, its members accounted for 11.3% of London's cloth exports,¹⁰² but this figure does not capture the Company's exports, destined for the Baltic, of Suffolk shortcloths shipped from Ipswich or its massive cargoes of northern kersies shipped from Hull and Newcastle.¹⁰³ Nor does it capture the interlopers' trans-shipments of cloth – originally exported by the Merchant Adventurers to Emden or Stade – via Hamburg and Lübeck to Danzig,¹⁰⁴ an aspect of English foreign trade brilliantly illuminated by Lionel Cranfield's commercial correspondence (1597–1612). Whether trading (through his agents and factors) as an interloper from Emden and Stade (1600),¹⁰⁵ with a factor temporarily (1607)¹⁰⁶ or permanently (from 1608)¹⁰⁷ in Danzig, Cranfield was very well informed about the Danzig market indeed. He would, indeed, seem to have been typical, even if one must admit that we know much less about English mercantile activities in Danzig on the cusp of the 17th century than we would like. As was the case with the Merchant Adventurers, information from merchants like Cranfield was of crucial value to the East India Company when it began to think about continental markets for the vast quantities of the pepper it had begun to import in 1603. After all, a number of its founding members had been active as members of the Eastland Company. Of the founding members of the East India Company, 26 were also free of the Eastland Company (4.53%). Their investment (£4470) amounted to 7.12% of the total.¹⁰⁸ These merchants were the source of the expert knowledge of market liquidity and trends which enabled the East India Company to direct its exports of pepper unerringly to Danzig.

The remaining continental markets which the East India Company marked out for its reexports of pepper all (with the exception of Amsterdam) constituted trading posts of the Levant Company, whose second charter (1592) united it with the Venice

Company and granted the consolidated organization a monopoly of trade over the dominions of Venice and the Ottoman sultan.¹⁰⁹ In addition to tin and lead, members of the Levant Company exported massive numbers of kersies – and increasingly from around 1600 also finished Suffolk and West Country broadcloth¹¹⁰ – to Venice and the colonies of the Serenissima, Aleppo (in present-day Syria), Alexandria and Constantinople.¹¹¹ In order to obtain Spanish dollars (pieces-of-eight),¹¹² with which to purchase their return cargoes (notably cotton, both raw and spun, Persian raw and spun silk, spices and dyestuffs such as indigo), they called at Portuguese and Spanish ports on the outward voyage, exchanging part of their cargo for cash.¹¹³ Once the ships entered the Mediterranean, they called at Leghorn (Livorno) on the west coast of Italy, which from 1593 had been a free port under the suzerainty of the Medici Grand Duke of Tuscany,¹¹⁴ and from 1573 a regular port of call for English merchants selling woollens and buying Italian fustians.¹¹⁵ Although we know much less about English trade in Naples than we would like, it would seem that it, too, was a port of call for English merchants seeking fustians, for which Naples had been famous since the mid-15th century.¹¹⁶

This spectacularly successful trade¹¹⁷ was endangered the moment news arrived in the Levant Company's factory in Aleppo in 1599 that six Dutch ships had returned to Holland from the East Indies loaded with Oriental wares,¹¹⁸ particularly since these were just the goods (spices, especially pepper, silk and dyestuffs) which the Levant Company obtained in Aleppo from the overland caravan trade.¹¹⁹ The threat of Dutch under-selling or even a Dutch monopoly galvanised the leading members of the Levant Company to found the East India Company in 1600 to counter the threat.¹²⁰ And indeed, "all the most prominent members of the Turkey trade were original subscribers to the East India Company".¹²¹ Of the founding members of the East India Company, 134 were also free of the Levant Company (23.34%). Their investment (£28,720) amounted to a staggering 45.75% of

the total.¹²² And the link between the two companies – both in terms of investors and of complementary commercial policy – was maintained throughout the 17th century.¹²³ There can be no doubt, then, that these merchants were the source of the expert knowledge of market liquidity and trends in southern Europe and the Ottoman dominions which enabled the East India Company to direct its exports of pepper unerringly to Portugal, Leghorn, Naples, Venice and Constantinople.

III

So the solution to the problem of how the East India Company knew just where to export the vast amounts of pepper it began importing every year in the early 17th century proves to have been the cloth exports of the merchant companies whose members constituted the rank and file of the East India Company's active traders.¹²⁴ When the problem of the distribution of pepper arose, they pooled their hard-won knowledge of continental markets, gained from years of selling cloth and buying return cargoes under the auspices of the Merchant Adventurers', Eastland and Levant companies, and applied it to the problem at hand. This fundamentally simple solution to a large problem should not occasion great surprise. After all, it makes little sense to blaze a trail through the woods if there is a perfectly good road leading to the same destination. And the pattern repeated itself. When the problem of distribution of Staffordshire porcelain arose in the 18th century, the manufacturers simply followed in reverse the routes the so-called 'china men' had used to distribute oriental porcelain landed in London throughout Great Britain, and, in turn, these routes were none other than the ones established in the second half of the 17th century for the distribution of Venetian glass.¹²⁵

In closing, let us look a little more closely at Hamburg, since it sheds welcome light on the Company's earliest years. After the decline of the Antwerp fairs, the Merchant Adventurers established themselves in Hamburg. Hamburg was not only a major outlet for

English cloth, but also for shipments of spices, notably pepper, from Lisbon,¹²⁶ where the triumphant Spanish monarchy had taken over the royal Portuguese monopoly of the spice trade in 1580.¹²⁷ Germany, for which Hamburg was the port of entry, was the major market for these shipments.¹²⁸ While in the 1570s and 1590s various consortia, involving the Fugger and Welser among others, had garnered the exclusive royal contracts to supply Portuguese spices to northern Europe,¹²⁹ they were replaced by the English as suppliers of pepper to the Hamburg market immediately after the first voyage of the East India Company.¹³⁰ This suggests most powerfully indeed that the East India Company's shareholders did not take ten years to discover how liquid the Hamburg market was, but that they had directed their exports there from the beginning.

It seems to me that the evidence from the early years of the East India Company demonstrates that the Distribution Revolution had taken place by 1600. The trade in the Company's pepper was not chaotic, full of false starts and failed experiments. The distribution of pepper for domestic consumption and its export to Continental markets was a smooth operation, one which made good use of distribution structures which were demonstrably up to the task of moving a million pounds of pepper a year. The vertical integration of markets in England and on the Continent was, by this time, complete, and the distribution routes for exotic products clear. And that is what I wanted to demonstrate.

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Notes

Chapter 1

1 This introduction also incorporates comments by Prof. John Styles from the University of Hertfordshire, who was kind enough to share his thoughts on the overall themes and points of discussion at the conference with its organisers. This introduction includes his notes.

2 Arnold III.5.

3 Lopez 1976, 130.

4 See for example publications by Karin M. Frei, who also presented her research and its future potential at the conference. See also, among others, Frei 2009; Frei, Frei, Mannering, Gleba, Nosch and Lyngstrøm 2009; Frei, Skals, Gleba and Lyngstrøm 2009; Frei, Vanden Berghe, Frei, Mannering and Lyngstrøm 2010.

Chapter 2

1 Jankuhn 1986; Ambrosiani and Clark 1991.

2 Geijer 1938; 1965; 1980; Hägg 1974; 1983; 1984; 1986; 1991.

3 Geijer 1938.

4 Hägg 1983, 205.

5 Geijer 1938, 40; Hoffmann 1964; Geijer 1965; 1994; Hald 1980, 199; Ingstad 1980; Hedeager Krag 1994; Bender Jørgensen 1986; Hägg 1987; Andersson 2003; 2012.

6 Bender Jørgensen 1986, 168.

7 Geijer 1938; 1980.

8 Bender Jørgensen 1986, 179.

9 Geijer 1938; 1965.

10 Carus-Wilson 1969; Bender Jørgensen 1986, 360.

11 Hägg 1974.

12 Bender Jørgensen 1986.

13 Bender Jørgensen 1986, 327–328.

14 Andersson 2003a; Andersson 2003b; Andersson 2007; Andersson

Strand 2011.

15 Andersson 2003a.

16 Andersson 2003a; 2012.

17 Andersson 2003a.

18 Mårtensson *et al.* 2009; Andersson Strand 2011; Andersson 2012a; 2012b.

19 Andersson 1996; 2003a.

20 Svandberg and Söderberg 2000; Andersson 1996; 2000.

21 Andersson 1996; 2000.

22 Andersson 2000.

23 Andersson 1996; 2003a.

24 Andersson 2003b; 2012.

25 Andersson 2003.

26 Andersen and Nørgård 2009, Nørgård, personal communication; see also Bender Jørgensen 2013.

27 Walton 1997, 1822; Henry 2005, 54.

28 Henry 2005, 55.

29 Walton Rogers 1997.

30 Sindbæk 2011.

31 Gebauer Thomsen forthcoming.

32 One can question whether the Icelandic Sagas and other written sources are representative of Viking Age society. However, until the industrial revolution, textiles were time-consuming and costly to produce and textiles were given as both gifts and salary. This is, for example, visible in early modern probates and it is likely that textiles had a similar value in previous periods.

33 Andersson 2007.

34 Bender Jørgensen 1986; Andersson Strand and Mannering 2011.

35 Arbman 193, Polanyi 1957; Christophersen 1989; Hodges 1989.

36 Gustin 2004.

Chapter 3

1 Dennis *et al.* 1998, 2000; Hoffman 1974, 212.

2 Crowfoot *et al.* 2001, 22; Hoffman 1974, 197.

3 Hoffman 1974, 205; Róbertsdóttir 2008, 26.

4 Róbertsdóttir 2008, 26.

5 Róbertsdóttir 2008, 131.

6 *Ibid.*

7 Meulengracht Sørensen 1983, 20; Aðalsteinsson 1991, 288; Róbertsdóttir 2008, 26; Bek Pedersen 2009, 174.

8 Hayeur Smith, 2014a, 740.

9 With funding from the United States National Science Foundation and support from numerous institutions, agencies, and individuals in Iceland, I have been examining these archaeological textile assemblages to address these and other questions. The NSF-funded project *Rags to Riches, an Archaeological study of Gender and Textiles, AD 874–1800* (NSF no. 1023167), examined the production of woven cloth currency, changes through time in weaving, and the roles men and women played in managing this crucial resource. The project has been followed up with a second grant, *Weaving Islands of Cloth, Gender, Textiles and Trade Across the North Atlantic from the Viking Age to the Early Modern Period* (NSF, 1303898), placing the Icelandic collections into a broader North Atlantic context.

10 Hayeur Smith, 2014a, 734

11 Hayeur Smith, 2014a.

12 Gelsinger 1981, 127.

13 Zanchi 2008, 28.

14 Zanchi 2008, 27.

15 Zanchi 2008, 31.

16 Zanchi 2008, 24.

17 *Ibid.*

18 Dennis *et al.* 1998, 209.

19 *Ibid.*

20 Helgi Þórlaksson, pers. comm.

21 Smith, 2012 in prep. Trans, K. P. Smith 2012.

22 Markus 1957; Gelsinger 1981; Þórlaksson 1991; Róbertsdóttir 2008.

23 Guðjónsson 1973; 1982.

24 Adovasio 1986; Kuttruff 1988; Drooker 1992; Johnson and Speedy 1991; Carr and Maslowski 1995; Petersen and Wolford 2000; Minar 2001, 382.

25 Minar 2001, 384.

- 26 Bender Jørgensen 1992, 126.
- 27 Bender Jørgensen 1992, 39; 2007, 137.
- 28 Bender Jørgensen 1992, 122.
- 29 Helgason *et al.* 2001, 733.
- 30 Walton Rogers 1989, 334; Bender Jørgensen 1992, 40.
- 31 Bender Jørgensen 1992, 41.
- 32 Lucas 2010, 318–320.
- 33 Gelsinger 1981, 15.
- 34 *Ibid.*
- 35 Gelsinger 1981, 69.
- 36 *Ibid.*
- 37 *Ibid.*
- 38 *Ibid.*
- 39 Gelsinger 1981, 128.
- 40 *Ibid.*
- 41 *Ibid.*
- 42 Hoffman 1974, 223; Gelsinger 1981, 253.
- 43 Gelsinger 1981, 254.
- 44 See Rafto and Þórsteinsson 1958 in Hoffman 1974, 198.
- 45 Østergård 2004, 59.
- 46 *Ibid.*
- 47 Dennis *et al.* 2002, 419.
- 48 Tidow *et al.* 2007, 98.
- 49 Bradenburg 2010.
- 50 Lindström 1982, 182; Bender Jørgensen 2003, 136.
- 51 Hoffman 1974, 195; Skre, 2011, Gullbeck, 2011; Þórlaksson, personal communication, 2012.
- 52 Dugmore *et al.* 2007, 20.
- 53 *Ibid.*
- 54 More recent research on Icelandic textiles has suggested earlier dates for the commencement of standardised vaðmál, see Hayeur Smith, 2014a, *Thorir's Bargain*.
- 55 Þórlaksson 1999, 288.
- 56 Hayeur Smith 2014b.

- 57 Dennis *et al.* 1980, 2002.
- 58 *Ibid.*
- 59 Dennis *et al.* 1980, 349.
- 60 Østergård 2004, 63, Hayeur Smith, 2014a, 732.
- 61 Dennis *et al.* 2002, 419, Hayeur Smith, 2014a, 733.
- 62 Sigfússon 1940, Hayeur Smith, 2014a.
- 63 Hoffman 1974, 212.
- 64 Þórláksson 1991, 247.
- 65 Hoffman 1974, 212.
- 66 Hoffman 1974, 213; Østergård 2004, 62.
- 67 Conkey and Gero 1997; Nelson 1997; Brumfiel 1996; Gilchrist 1999; Conkey 2003.
- 68 Meulengracht Sørensen 1983, 20.
- 69 Aðalsteinsson 1991, 288.
- 70 Hayeur Smith, 2014a: 741,742.

Chapter 4

- 1 Andersson 1999; 2000; 2003; Øye 1988; 2010; 2011.
- 2 Andersson 1999; Mårtensson *et al.* 2006a–c.
- 3 Lønning 1976, 20.
- 4 Andersson 1999, 24 with references.
- 5 Warburg 1976, 89.
- 6 Harrington 2008, 56.
- 7 Hoffmann 1964.
- 8 *Ibid.*, 37.
- 9 *Ibid.*, 21, 42.
- 10 *Ibid.*, 24–29.
- 11 *Ibid.*, 44.
- 12 Mårtensson *et al.* 2006c, 11.
- 13 Andersson 2003, 28.
- 14 Kaland 1979, 83 with references.
- 15 Andersson 2003, 47.
- 16 Andersson 1999, 9 with references.
- 17 *Ibid.*, 11–13.

- 18 Bender Jørgensen 2005, 66 with references, but seems to be based on a miscalculation or misprint with one zero too much.
- 19 Rabben 2002.
- 20 Petersen 1951.
- 21 Solberg 1985.
- 22 Bender Jørgensen 1986, 265.
- 23 Bakka 1971.
- 24 Harrington 2008, 63.
- 25 Andersson 1999, 20–22.
- 26 Mortensen 1994.
- 27 Report A. Bergli 1993; E.Schjølberg 17.1.1993, University Museum of Bergen.
- 28 Harrington 2008, 48.
- 29 Øye 1986, 410–412.
- 30 Ramstad *et al.* 2011. I would like to thank the leader of the Bjørkum project Morten Ramstad for making the unpublished material, the artefacts and field documentation, available to me.
- 31 Øye 2002, 369–376.
- 32 Randers 1981, 111.
- 33 Bender Jørgensen 1986, 263–267.
- 34 Andersson 1999, 25.
- 35 Skattematrikkelen av 1647, 78.
- 36 According to the tax list of 1657 the stock of sheep and goats at the farm comprised 23 goats, 25 sheep and 3 lambs.
- 37 Andersson 1999, 19.
- 38 24 cows, 12 heifers, 2 oxen, 24 goats, 32 sheep, 7 lambs and 2 pigs at the two holdings according to the tax list of August 1657 (Kvegskattelisten for Indre Sogn).
- 39 Aschehoug 1890, 50.
- 40 Randers 1981, 102.
- 41 *Ibid.*, 99: referring to tax list 1657: 1 horse, 1 oxen, 22 cows, 3 heifers, 14 goats, 23 sheep.
- 42 Randers 1981.
- 43 Øye 2002, 379–389; Baug 2002; Tveiten 2011.
- 44 Øye 1988; 2011.

45 Øye 2011, 369 with references.

46 Øye 1988, 41.

47 *Ibid*, 63.

Chapter 5

1 Garmonsway 1939, 33, lines 159–160.

2 Pounds 1994, 68.

3 Pounds 1994, 68–69.

4 Milne 2003, 21.

5 Clarke and Ambrosiani 1995, 33.

6 Hinton 2006, 85.

7 Walton Rogers 2005.

8 Dodwell 1982, 145–150. *Purpura* continued to be found in a range of colours later in the Middle Ages: the 1245 inventory of St Paul's Cathedral includes white, black, red, dark and marbled *purpura*; Sparrow Simpson 1887, 473–486.

9 Dodwell 1982, 145–150.

10 Crowfoot *et al.* 2001, 90.

11 John 2012.

12 Uzzell 2012.

13 *Historia Ecclesiastica* I, i; Colgrave and Mynors 1969, 14.

14 Munro and Owen-Crocker 2012.

15 Munro *et al.* 2012.

16 Winchester: Haddock and Whiting 1990; York: Tweddle 1989; Walton 1989, 369.

17 Walton Rogers 2007, 72, 74, 235.

18 Vince 1991, 168–169.

19 Freyhan 1956; Plenderleith 1956; Coatsworth 2001.

20 Granger-Taylor 1989a; 1994.

21 Granger-Taylor 1989b.

22 Crowfoot *et al.* 1992, 85.

23 Walton 1989, 375–8.

24 Heckett 2003, 44–75.

25 Walton 1989, 377–381.

26 Walton 1989, 369. See also Tweddle 1989.

- 27 Granger-Taylor and Pritchard 1991.
- 28 Crowfoot *et al.* 1992, 85.
- 29 Walton 1989, 381–382.
- 30 Walton Rogers 2007, 86.
- 31 Discussed in Owen-Crocker 2004, 300.
- 32 Walton Rogers 2007, 101.
- 33 For a discussion and three possible translations of the (contentious) passage see Owen-Crocker 2004, 134–136.
- 34 Granger-Taylor 1989c.
- 35 *Historia Ecclesiastica* IV, xxii; Colgrave and Mynors 1969, 404 and n 2. This and the following reference developed from Walton 1989, 416.
- 36 Altfrið *Vita Liudgeri* chapters 10–12; translated in Whitelock 1955, 724–6 (724–5).
- 37 *Maxims I*, lines 93–99 (*Frysan wife* line 95); Krapp and Dobbie 1936, 160.
- 38 The *Anglo-Saxon Chronicle* for 897, version A. Bately 1986, 60.
- 39 Walton 1989, 416 mentions Frisian coins and brooches in York.
- 40 Notker the Stammerer *Charlemagne*, II, 9; translated Thorpe 1969, 147. Reference developed from Pounds 1994, 73. Walton 1989, 416 notes that the coastal peoples were known for the variety of colours in their garments, citing van Uytven 1983, 151–183 which references a poem by Ernoldus Nigellus c. 826–828.
- 41 Bender Jørgensen 1992, 143; Walton 1989, 340, pl. xxib, item 1382 dated c. 975 to mid-11th century; Walton Rogers 1997, 1826; Walton Rogers 2007, 77, 237–238.
- 42 Walton 1989, 340.
- 43 Pritchard 1982, 204.
- 44 Isabella von Holstein, personal communication. The textiles did not resemble those from Frisian sites that had been tested. The testing was part of the research for at the University of York on ‘A light stable isotope approach to identifying movement of medieval textiles in North West Europe’ unpublished PhD thesis, University of York, 2012. Also pers. comm. from Penelope Walton Rogers.
- 45 Dorestad may have continued as a major trading port till about 875 with some residual occupation after that; Van Es and Verwers 1980, 293–299.

46 Walton 1989, pl. xxvia.

47 Walton 1989, pl. xxvib.

48 Walton 1989, 417–418.

49 Pounds 1994, 74.

50 Walton Rogers 2007, 79–80, 225, 236. Where the fibre has been identified, it is wool.

51 Walton Rogers 2007, 79, 81–2, 236. Found in both wool and flax.

52 Walton Rogers 2007, 237.

53 Walton Rogers 2007, 237–238 lists ten occurrences in south-east England.

54 Walton Rogers 2007, 82–85, 237.

55 Walton Rogers 2007, 85–86, 237. The Sutton Hoo ‘cloak’ fabric and the Broomfield one were dyed. The Banstead Down example is notably heavy and shaggy. These were prestigious textiles in prestigious barrows. A few pile-woven fabrics have also been found in female graves of the sixth century. They appear to have been of lesser quality.

56 Owen-Crocker 2004, 109–110, 335–336.

57 Walton Rogers 2007, 85.

58 Hines 1984, 35–109 discusses the typology and distribution of clasps in detail, at pp. 108–109 preferring a hypothesis of immigration including women from Scandinavia c. 475 to speculative merchants from Norway attempting to trade a new commodity and potential English merchants bringing a cargo of clasps having become familiar with clasps and their associated dress style while in Norway. Hines 1993, 88 again mentions ‘immigrants’ from southern and western Norway.

59 Crowfoot and Hawkes 1967; Crowfoot 1969.

60 ‘The popular conception of the gold-ornamented headband as the emblem of a bride probably goes back to an over-interpretation of a passage by Gregory of Tours ...’, Haas-Gebhard and Nowak-Böck 2012, 13. Walton Rogers 2007, 158 points out that the positions of gold brocading in graves at Dover Buckland II and Mill Hill, both Kent, excavated since the Crowfoot and Hawkes survey, clearly indicate that the gold band either edged or more extensively decorated a veil which fell down to, or beyond, the shoulders.

61 Although no silk textile has yet been found directly associated with gold brocading, the outstandingly rich Unterhaching Grave 5, an early

6th-century female burial, also contained silk, which was found in the head and chest area. The gold brocade was also found in the head area; Haas-Gebhard and Nowak-Böck 2012, 18–19.

62 Owen-Crocker 2004, 91–102.

63 Meaney 1981, 252; Owen-Crocker 2004, 69–70.

64 From West Heslerton, North Yorkshire. The ivory ring was encased by leather, and the leather was apparently lined with the tapestry weave; Walton Rogers 2007, 83, 223, 236.

65 Crowfoot 1983, 457; Carver 2005, 188–189.

66 Fleming 2007, 129–130.

67 Granger-Taylor 1989a.

68 *HE* II,10; Colgrave and Mynors 1969, 170–171 (following a reference from Walton Rogers 2007, 240).

69 Cigaar 1982, 78–96.

70 Granger-Taylor 1994. Frances Pritchard has suggested to me that the textile might derive from buskins, coverings for the foot and lower leg which were which were being worn by high ranking ecclesiastics and other royalty about this time and which were made of similar silk. (Pers. comm. in post-conference discussion.)

71 Walton 1989, 420 citing Dodwell 1982, 149–150.

72 Walton 1989, 419.

73 Owen-Crocker 2012.

74 In a paper read at the Copenhagen conference.

75 Wendelken 2012, 517.

Chapter 6

1 Nockert 2006, 298; Geijer 1952, 17; 1972, 261.

2 Geijer 1938, 59, 66.

3 Vedeler 2014.

4 Geijer 1938, 176–179.

5 Nockert 2006; Vedeler 2011.

6 In Norway: Oseberg, Voss, Sandanger, Haugen, Gokstad. In Sweden: Önsvala, Vivallen, Brista, Lund, Valsgårde, Tuna, Birka, St. Ihre in Gotland. In Denmark: Fløjstrup, Hørning, Hvilehøj, Bjerringhøj Mammen, Jelling, Slots Bjergby and Viborg Sønderød. In Finland: Eura and Tampere

7 Bonde and Kristensen 1993.

8 After studying the silks my opinion is that this number could be reduced. Many of the fragments in Nockerts fabrics 1–7 could be from the same fabric.

9 Nockert 2006, 298. Nockert interprets fabric Nos 1–11 as provincial Persian or east of this area, and fabric Nos 14–15 as Sogdian or from farther east than Sogdiana. These last fabrics are without spinning in both warp and weft.

10 Vedeler 2011, 138–140; Ciszuk 2011, 9–10.

11 Fabrics 12 and 13, Nockert 2006, 298.

12 Berghe 2011, 6. High-performance liquid chromatography. Method used to separate and identify dye compounds.

13 Geijer 1938, 176–179.

14 Geijer 1938, 58.

15 Vedeler 2013.

16 Geijer 1952, 17; 1972, 261.

17 Found in one grave dated to the 10th century, No. 944, together with fragments of S3, S4, bands, possament, embroidery. Geijer 1938, 178.

18 Found in grave No. 944.

19 Geijer 1938, 59–62, 66.

20 Group S 1 found in three graves, two of them dated to the 10th century (grave Nos 731 and 824) and one grave without dating (grave No. 535). Group No. S 2 was found in one single grave (grave No. 660) dated to the 10th century. Geijer 1938, 176–179.

21 Skre 2011, 425.

22 Gullbekk 2008, 161.

23 Rispling *et al.* 2007, 75–93 ff.

24 Skre 2007, 351; 2011, 426.

25 Muthesius 1990, 126.

26 Nockert 2006; Vedeler 2011, 142.

27 Davidson 1976, 73.

28 Callmer 2007, 255–266.

29 Larsson 2007, 231.

30 Cross and Sherbowitz–Wetzor 1953, 75.

31 Jacoby 2004, 205–206.

- 32 Duczko 2004, 190.
- 33 Callmer 2007, 260.
- 34 Frye 2005, 40.
- 35 Jacoby 2004, 219–220.
- 36 Ya`kubi translated in Serjeant 1972, 27.
- 37 Serjeant 1972, 212.
- 38 E.g. Davidson 1976, Shepard 1988, 71, 83, Muthesius 2004, 292

Chapter 7

- 1 E.g. Scott 1993; Munthesius 1995.
- 2 Pritchard in Grew and de Neergaard 1988, 7577; Larsen 1992, 80; 1997.
- 3 Hansen 2015.
- 4 E.g., Goubitz, Driel-Murray and Groenman-van Waateringe 2001, 41–46; Hall 2008, 99; Øye 2008, 693.
- 5 Larsen 1992: 1997.
- 6 Hansen 2005.
- 7 For a full account of the dating principles and methods behind the selection of this material see Hansen 2005.
- 8 Larsen 1992.
- 9 Riisøen 1985.
- 10 Pedersen 1992, 99.
- 11 Pedersen 1992, 93, 95, 99.
- 12 Pedersen 1992, 99.
- 13 Pedersen 1992, 99.
- 14 Larsen 1992, pl. 1.
- 15 Larsen 1992.
- 16 Pedersen 1992.
- 17 Value class (2) corresponding to Larsen's patterns A1, B1 and GA2. (3) Corresponding to patterns C1, C2, C3, C4, C6, C7, D1, F6, GA1, GF1 and GF2. (4) Corresponding to pattern A2, C5, F1, F11, F2, G1 and G4. (5) Corresponding to pattern D2 and G2. And (6) Corresponding to Larsen's pattern F3 and G3.
- 18 Oslo: Schia 1975, 1977; Trondheim: Marstein 1989, 73.
- 19 Schia 1975, 136–143; 1977, 178; Marstein 1989, 73.
- 20 Pedersen 1992, 101.

21 Marstein 1989, att. 1 and 2.

22 See lists in Marstein 1989, att.1 and 2. The dating of the Trondheim shoes is according to Christophersen and Walaker Nordeide 1994, fig. 23.

23 Cf. Schia 1987, 401–404.

24 NM 1973, 178. According to Gunnar Petersen, *Riksarkivet i Norge*, the pound in speech must be a *skålpund* with the weight of 428,64 g. Pers. comm. Nov. 2011. In the following, conversions of measures and weight are based on Steinnes 1936, 152.

25 Pedersen 1992.

26 <http://www.garn.dk>.

27 Thanks to Dr Frances Pritchard for valuable comments concerning the quality of the medieval yarn and to Dr Katrin Kania concerning the weight of reeled silk versus griegie.

28 Hansen 2005, 186–191.

29 Hansen 2009, 84–85.

30 Blomquist 1938, 189–219; Blomquist and Mårtenson 1963, 186–188; Mårtensson 1976, 308–311, figs 281, 282.

31 Koch 1998, 173.

32 Schnack 1992.

33 Broberg and Hasselmo 1981, fig. 82; Lödöse Museum exhibition visited 2014; Lukešová 2014.

34 Pritchard in Grew and de Neergaard 1988, 12, 79.

35 Mould *et al.* 2003, 3341.

36 Hall 2008, 99.

37 Mould *et al.* 2003, 3341 with references.

38 Pritchard in Grew and de Neergaard 1988, 12, 79; Thomas and Bogdan 2012, fig. 124, fig. 144.

39 Gulkowa 1964, in Pedersen 1992, 101 with references; Schia 1975, 142 with references.

40 Konczewska 2011.

41 Kowalska 2012.

42 Hald 1972, 140–141.

43 Gulkowa 1964, in Pedersen 1992, 101 with references; Schia 1975, 142 with references.

44 Larsen 1970, 22; 1992, 67; 2008, 54.

- 45 Blindheim 1959.
- 46 Bonde and Christensen 1993.
- 47 Cf. Vedeler this volume with references.
- 48 Hald 1972, 93–104, 132–134.
- 49 Groenman-van Waateringe 1984, tab. 3; Radtke 2000.
- 50 Cf. Hkr 1995, 187–188.
- 51 Cf. Hkr 1995, 187–188.
- 52 Hansen in press 2015.
- 53 Larsen 1997.
- 54 Lindahl 1973, 156.
- 55 Jacoby 2004, 208, 239, n 58.
- 56 ‘Himalaya’ <http://www.garn.dk>.
- 57 Pers. comm. F. Pritchard 2012, cf. also Jacoby 2004, 208.
- 58 Hansen 2005, fig. 33.
- 59 Hansen 2005.
- 60 Cf. e.g., Jacoby 2004.
- 61 Cf. Jacoby 2004, 217.
- 62 Crowfoot *et al.* 1992, 201.

Chapter 8

- 1 Martin 1986; Kovalev 2002; Makarov 2012, 381–390.
- 2 Sherman 2008, 1–20; Sizov 1956, 401–467.
- 3 Sizov 1955, 113–120.
- 4 Attman 1981, 185.
- 5 Attman 1981, 194.
- 6 Valk 1949, 10–41; Gnevushev 1915, 202–207; Vogelsang 1976, 1458 Oct. 21; 1983, 1472 March 7; Rybina 2001, 114.
- 7 Yanin 2007, 1–12.
- 8 I am aware of only one published birch bark letter of the slightly more than 1000 discovered to date that mentions flax or linen. The text seems to be fairly complete: ‘*Uoztsinku (kholst) bytkala, i ty u sebia izbeli*’. Trans: ‘Finish weaving the canvas and bleach it’. Rybina 2001, 114.
- 9 Monk and Johnston 2001, 114.
- 10 Nakhlik 1963, 230.
- 11 Kublo 2012, 225.

- 12 65 scutching knives were found in the Nerevsky digs, see Kolchin 1989, 107–110; and 32 in the Troitsky digs, see Kublo 2007, 137.
- 13 Kolchin 1989, 107–110.
- 14 Kolchin 1989, 109.
- 15 Gnevushev 1915, 202–207.
- 16 Novgorodskie Pistsovie Knigi 1910, 84.
- 17 Nikitskii 1893. 167. For those misled by Nikitskii's thesis, see Sizov 1956, 420; Danilova, 85.
- 18 Khoroshkevich 1963, 171.
- 19 Valk 1949, 10–41; for a broader discussion of the treaties and of Novgorod's unique relationship to its princes, see Kliuchevsky, 1960, 326–331.
- 20 Šterns 1997, 212–218, 227.
- 21 Weede 1997, 95–96.
- 22 Martin 1986, 82–83.
- 23 Chancellor 1968, 31.
- 24 Hakluyt 1555.
- 25 Bakhrushin 1952, 87.
- 26 Schlüter 1911, 198–216.
- 27 Crosby 1965; Attman 1981, 177–202.

Chapter 9

- 1 This study is based to a considerable extent, though by no means entirely, on two of my earlier publications: Munro 2007, 105–141; and 2012a, 45–207. The editors of both have given their permission for the publication of this current study. Any differences between this new publication and the two previous ones are to be decided in favour of the current one (i.e., in correcting previous but minor errors).
- 2 The most important study is Hoshino 1980. See also Agnoletti 1940; Franceschi 1993; Dini 1990, 321–359.
- 3 For the differences between woollens, worsteds, and serges – in their composition and manufacture – see in particular Munro 2012b, 121–147; 2009, 1–73; 2005, 431–484; 2003a, 181–227; Chorley 1997, 7–34.
- 4 See Krueger 1987, 722–750.
- 5 See Reynolds 1929, 831–850; Ammann 1957, 275–310, esp. 308–309:

Beilage I-II: Norwesteuropäische Tuche in Genua (1182–1213), including *sagie*, *stanfortes*; Farmer 2006, 73–79.

6 Krueger 1987, 744–747.

7 Mazzaoui 1972, 262–286; 1981, 28–72, 87–104.

8 Chorley 1987, 349–379, esp. 360–361, 367 (table 9). See also Chorley 1988, 1–10, for similar evidence on textile types and prices.

9 The most important documentary source is Saporì 1932.

10 Goldthwaite 2009, 270.

11 Chorley 1987, 355 (table 3).

12 The following discussion is based on data published in Hoshino 1983, 190 (table 11.2); and Hoshino 1980, 70–71 (unnumbered table).

13 For a discussion of the luxury woollens known as *scarlets*, see below n. 20 and p. 117.

14 Hoshino 1980, 65–113, esp. 95–114 (tables iv–xv); Hoshino 1983, 184–204; see also Goldthwaite 2009, 265–270.

15 Carus-Wilson 1987, 646 (quotation), 649, 652.

16 Aubenais 1959, 201–212, esp. 204, 206: with a range from 14s to 15s per *canna* of dyed Florentine cloths; but those of Genoa were even cheaper, at 8s. per *canna*. The Florentine *canna* = 2.333 metre = 4.0 *braccia*. Northern French *biffes* had an intermediate value: at 24s to 28s per *canna*, though some were as cheap as 10s a *canna*. See also Hoshino 1980, 71, for other prices from this source (without specifying the currency). For the current values of Angevin coinages in Provence, see Spufford 1986, 117–118. For the *canna* and *braccio*, see nn. 41 and 76 below.

17 For the *Arti di Calimala*, see Saporì 1932.

18 See Munro 1978, 118–169; 2003a, 186–191; 2005, 431–484.

19 See Saporì 1932; Goldthwaite 2009, 269–272; Ashtor 1976, 657–686; 1978, 303–377.

20 Kermes (*kermès* in French; *chermes* in Italian; *carmes* in Spanish) was the vivid scarlet dye extracted at a very high cost from the desiccated eggs of various Mediterranean shield lice. For an economic analysis of the production and trade in medieval scarlets: see Munro 1983, 13–70; 2007, 55–95; 2009, 1–73; 2012c, 477–478. For Italian scarlets, see Hoshino 1983–84/2001, 23–39.

21 These wars later merged into the far more famous Hundred Years' War

(1337–1453). For the following, see Munro 1991, 110–148; 2001, 1–47.

22 See in particular TeBrake 1993.

23 See North 1984, 255–264; 1985, 557–576; Munro 2001, 1–47.

24 For the following, see Munro 1991, 110–148; 1997, 56–64; 1999, 103–104; 2001, 1–47.

25 See Katele 1988, 865–889; Kedar 1976; Bresc 1980, 751–757; Heebøll-Holm 2013.

26 See Wolff 1957, 495–503, esp. 562, with the table indicating the fall in the number of foyers in the town of Millau: from 1835 in 1309 to 1541 in 1346, i.e., before the Black Death. See also Baratier and Reynaud 1951, 38–40, 207–228, 304–313; Lesage 1950, 185 (doc. no. 6): letter of Robert d’Anjou (King of Naples), dated 21 Oct. 1331, concerning the serious depopulation of Marseille; 184–186 (doc. no. 7): on the serious decline of Marseille’s population from the 1290s. In Tuscany, Prato’s urban population declined by 26.9% from 1300 to 1339; and its rural population by 38.7%. In neighbouring Pistoia, the population declined by 36.3% from 1244 to 1344 (well before the Black Death). See Herlihy and Klapisch-Zuber 1985, 60–92, esp. 62 (fig. 3.1), 63 (table 3.1), 71 (table 3.3), 73 (table 3.4), 74 (table 3.5); and also Herlihy 1967, 55–77, esp. 69–70 (graph I and table 1); and 271–272 (appendix 1); Day 1987, 185–224.

27 See especially Munro 2001; and also Munro 1991; 1994b; 1997; 1999a; 1999b; 1999c. For the most recent study on the fairs, see Edwards and Ogilvie 2012; see also Menard 1991.

28 According to Venetian state records, the Flanders galleys made only 24 northbound voyages from 1332, when state subsidies commenced, to 1400 (i.e., a mean of 2.8 per decade). In the relatively more peaceful and commercially more propitious 15th century they made 86 such northbound voyages. See Tenenti and Vivanti 1961, 83–86. A more accurate record can be found in Stoeckly 1995; but unfortunately her study ceases in 1453, thus preventing a valid comparison of these two centuries.

29 In 1398, the Italian merchant Gulgielmo Barberi, an employee of the Datini firm in Prato, reported that the cost of shipping Wervik woollens from Bruges to Barcelona by sea amounted to 15% of the price (22 florins), while shipping them overland, when routes were safer, cost 22% of that price. But he also explicitly noted that some other merchants had ‘lost all their profit’ by so foolishly choosing to send their woollens

overland. Letter to the Datini Co. in Barcelona, 10 May 1398: cited in Melis 1962, 219–243, quotation on 233 n. 30. In contrast, we may note that around 1310 the costs of transporting far cheaper Caen *sayes* overland via the Champagne Fairs and the Rhone valley route to Florence had cost only 8.8% of their much lower value (11.5 florins). Saporì 1932, 97–99: 1.01 florin per say in transporting 133 says; but total marketing costs amounted to 2.20 florins per say (19.2%). See n. 37 for the high costs of shipping English wool to Venice by sea.

³⁰ See the evidence cited in Munro 1991, 110–148; 1997, 35–127; 1999a, 103–141; 1999b, 1–74; 2001, 1–47.

³¹ See the sources cited in n. 30 above.

³² See Mazzaoui 1972, 262–286; 1981, 129–153; Kellenbenz 1983, 259–278; von Stromer, 1978.

³³ See the sources cited in n. 30 above; and also Munro 1999, 1–30; 1990, 41–52; 1994a, 377–388. As these studies make clear, those northern producers engaging in monopolistic competition, especially those in the Low Countries, did not do so as individual entrepreneurs but as members of urban guilds that imposed rigid quality controls and uniform standards, with close inspections, so that the luxury woollens were deemed to be products of those towns and not of the individual drapers. In Florence, that guild was, of course, the *Arte della Lana*.

³⁴ See also Goldthwaite 2009, 272–273, on import-substitution industries in Florence.

³⁵ See above, pp. 116–117 and n. 17.

³⁶ See below, pp. 131–140 on the costs of importing English wools and Munro 2012a, 195 (table 11).

³⁷ Fryde 1974, 291–337; 1972, 345–355.

³⁸ The initial export tax (1275) was 6s 8d per sack of wool. In 1294 the wool trade was dominated by eight Florentine and two Lucchese firms: the Frescobaldi Bianchi, the Frescobaldi Neri, the Cerchi Bianchi, the Cerchi Neri, the Bardi, the Pulci-Rimbertini, the Mozzi, and the Spini (all from Florence); and the Riccardi and Bettri (from Lucca). For the Italian role in the English wool trade, see Lloyd 1977, 60–98, 136–140, 185–189; and Goldthwaite 2009, 203–255; Bell *et al.* 2007, 11–67.

³⁹ On the evolution of the Italian bill of exchange, see de Roover 1946–47, 111–128; de Roover 1953; Munro 2003, 505–562; Denzel 2008, 153–194.

40 Because of the crucially important part that the payer or acceptor played in this principal-agent transaction, bills of exchange came to be more commonly known as acceptance bills by the 17th century. To the present day, acceptance bills have been the chief mechanism for financing international trade. The bill of exchange also served a useful function in evading the universal prohibition against usury by disguising interest in the exchange rates. See the sources cited in n. 39 above.

41 Hoshino 1983, 189 (table 11.1): 75% of cloths produced were in the price range of 45–55 *soldi* per *canna* (2.333 m). A standard piece of Florentine cloth, known as a bolt, then possibly measuring 18.875 *canne* = 75.50 *braccia* in length (width unknown), priced at 55s per *canna*, would have then been worth 1038.125 *soldi* = 17.30 gold florins (1 florin = 60s or £3.00). The Florentine *canna* = 2.333 m = 4.0 *braccia* (0.583 m); see n. 16 above. According to Goldthwaite 2003, 527–554, a 16th-century bolt of Florentine woollen cloth was somewhat shorter, measuring 61.77 *braccia* in length = 15.4425 *canne* = 36.012 ms. See n. 76 below; and also Munro 2012a, nn. 24, 38, 46, 67, 77, 98, and 216.

42 Hoshino 1981, 50–51.

43 The name *San Martino* comes from the convent of that name, situated between the Duomo (cathedral) and the Palazzo Vecchio, where most of the cloth production using English wools took place. The requirement for all *lanaiuoli* in the San Martino sector to use English wools exclusively was reiterated in an *Arte della Lana* ordinance issued in 1408. See Hoshino 1980, 208; Franceschi 1993, 22; Goldthwaite 2009, 273.

44 Hoshino 1980, 216 (table 26).

45 See Hoshino 1980, 153–229; 1983, 191–204 and Goldthwaite 2009, 278 (table 4.1), estimating that, in the late 14th century, the San Martino sector accounted for only about 40–43% of total Florentine cloth production, so that the Garbo sector accounted for the rest. How much of the latter output was for local markets and how much for export cannot be determined. Goldthwaite's estimates differ sharply from those of Hoshino, who credits the San Martino sector with 75% of production.

46 Villani 2007, III: *Libri XII–XIII*, libro XII, cap. XCIV, 197–202, esp. 199: '*Le botteghe dell'arte della lana erano CC et più, e faceano da LXXm in LXXXm di panni, di valuta di più du MCC migliaia di fiorini d'oro.*' Thus 75,000 *panni* is the mean of his two estimates for 1336–1338. But earlier, c. 1310: '*Ben troviamo che da XXX anni adietro erano CCC botteghe or circa,*

e faceano per anno più di C^m panni; ma erano più grossi della metà valuta, però ch'allora non ci venia né sapeano lavorare lana d'Inghilterra, com'janno fatto poi.'

47 See Hoshino 1980, 153–211, especially 194–200; and also Hoshino 1981, 42. For the length of the bolt (and of the *canna*), see nn. 16 and 41 above, 76 below.

48 See Hoshino 1980, 194–200, for a criticism of Villani's figures, providing instead an implausible estimate of just 24,000–30,000 woollens produced per year in the later 1330s. For my defence of Villani and objections to Hoshino's estimates, see the detailed discussion in Munro 2012a, 94–95.

49 Franceschi 1993, 8.

50 Najemy 1981, 70–71; 2006, 149–150; Hoshino 1981, 50.

51 Hoshino 1981, 41–58, esp. tables on 57. These 2023 *panni* were woven from 145,985 lb. of English wools and just 1959 lb. Burgundian wools. The Florentine pound or *libbra* weighed 339.542 g.

52 Franceschi 1993, 7–8; Hoshino 1980, 194–200; 1981, 41–58; Goldthwaite 2009, 278 (table 4.1)

53 For these events, see Najemy 2006, 124–186; Cohn 1980; 1984, 143–164; 2004, 201–260; 2006, 57–65; see also Munro 2012a, 86–93 (and sources cited therein).

54 See, first, Davidsohn 1928, 250: stating 19,474 bolts in 1381–1382; Hoshino 1980, 227 (table xxvi): stating 19,296 bolts; Franceschi 1993, 13 (table 2), also stating 19,296 bolts for 1381–1382. According to Franceschi, this total output was produced by 283 *botteghe*, each of which thus had an annual mean of just 68.20 bolts.

55 See Hoshino 1980, 194–200; Goldthwaite 2009, 278 (table 4.1); Franceschi 1993, 13 (table 2), stating the mean output for the years 1391–1395 was 13,358 bolts.

56 Hoshino 1980, 204–205. This output, with a value estimated at 350,000 to 400,000 florins (an average value ranging from 33.33 to 36.36 florins), is also cited in Dini 1990, 321–359.

57 Franceschi 1993, 13 (table 2), about 9000 to 10,400 pieces in 1427, and between 9130 and 10,967 pieces in 1430. See also Chorley 2003, 487–526 (esp. 488).

58 Goldthwaite 2009, 278 (table 4.1). In the years 1420–1425, the mean value of the gold florin *in lira di piccioli* was £4.000. See Bernocchi 1976,

84–86; Spufford 1986, 18–21.

59 See Herlihy and Klapisch-Zuber 1985, 67–79, disputing Giovanni Villani's well-known estimate of just 90,000.

60 Najamey 2006, 97.

61 Goldthwaite 2009, 22; and 278, table 4.1. Goldthwaite cites Ginatempo and Sandri 1990, 148, but their table for Florence's population in 1300, on p. 148, states: '*oltra 100 mila*'. See also Nicholas 2003, 19 (fig. 1.3), providing the lower figure of 90,000 for Florence's population in 1300; and Malanima 2013, 6, cites an estimate of 110,000 for Florence's population in 1300 (and one of just 37,000 in 1400).

62 See n. 26 above, esp. Herlihy and Klapisch-Zuber 1985, 60–92, esp. 62 (fig. 3.1), and 63 (table 3.1), 71 (table 3.3), 73 (table 3.4), 74 (table 3.5); Herlihy 1968, 55–77, esp. 69–70 (graph i and table 1), and 271–82 (appendix i).

63 See n. 26 and above, p. 118.

64 Herlihy and Klapisch Zuber 1985, 69, n. 23: indicating taxable hearths of 9955 (1352), and 9,904 (1355), for which they apply a household multiplier of 4.19, which may be too high. See also Najemy 2006, 100, citing the same figures and household multiplier; he also quotes Matteo Villani's estimate of 60% mortality from the Black Death itself.

65 Herlihy and Klapisch Zuber 1985, 69; Najemy 2006, 100: 13,074 households, with the same multiplier of 4.19 (in 1380).

66 Herlihy and Klapisch Zuber 1985, 74 (table 3.5): 9,780 households, with the lower family multiplier of 3.80 = 37,144 inhabitants. Goldthwaite 2009, 278 (table 4.1) gives a slightly different figure of 40,000 inhabitants; Najemy 2006, 100 gives 37,225 in 10,171 households with a multiplier of 3.65.

67 Herlihy and Klapisch-Zuber 1985: 62–63 (fig. 3.1, table 3.1). The population of the countryside around Pistoia declined from an estimated 23,964 in 1344 to 11,772 in 1427, according to the 1427 *Catasto*. See Herlihy 1967, 70 (table 1). See evidence for similar declines in the hillside villages surrounding Florence (1356–1427), in Cohn 1999, 86–88 (figs 3.1–3.3).

68 See Munro 2003a, 191–204.

69 See above, pp. 117–118.

70 Unlike Florence's silver coinage, its gold florin remained relatively stable in its weight and fineness (about 23.875 carats) during the 14th

century. In 1334, the florin was worth £2.975 in the *lira di piccioli*, with a gold:silver ratio of 10.91:1; in 1390, it was worth (about) £3.75, with a gold:silver ratio of 10.34. See Bernocchi 1976, 79, 177, 208.

⁷¹ See n. 47 above.

⁷² See also Goldthwaite 2009, 272, contending that ‘Florentine cloth came to enjoy the distinction of being the most luxurious and costly of all.’

⁷³ From the accounts of the Pisan firm Baldo da Sancasciano et figli, in Melis 1959, 321–365; esp. 326–327, 342–343, 347, 363–364, for tables i, v, vi, x. For English cloth prices at Winchester and Cambridge colleges and mean export prices in the 1370s, see Munro 2009, 38–43 (tables 1.11–1.13).

⁷⁴ Melis 1962a, 229 (table iv).

⁷⁵ Ashtor 1978, 303–377; 1983, 151–56, 341–66; 1988, 227–257.

⁷⁶ See n. 41 above. According to Melis 1962a, 229, the Florentine woollens of the mid-14th century had a length of 18.875 *canne* (44.035 m) compared to one of 13.333 *canne* (31.106 m) for the Flemish woollens: 1 *canna* = 4 *braccia* = 2.333 m.; 1 *braccio* = 0.583 m. In the mid-16th century, however, one bolt of Florentine cloth (*Arte della Lana*) measured 15.443 *canne* = 36.012 m. See Goldthwaite 2003, 527–554, esp. 553: table A1. Furthermore, in the Low Countries during the 15th and 16th centuries, the standard length of a finished woollen cloth was even shorter, though also evidently shorter than in the 14th century: 30 ells = 21.00 m; English broadcloths of assize, fully finished, were 24 yd × 1.75 yd = 21.946 m × 1.600 m. See Munro 2003b, 314 (table 5.7).

⁷⁷ In 1391–1395, the average daily wage of a Florentine master mason was 16.84 *soldi di piccioli*; and the mean value of the gold florin was about 76 *soldi* (£3.80). See Bernocchi 1976, 79–80, 215; Malanima 2013: Prices and Wages in Italy, 1270–1913 (online data set); but revised in <http://utoronto.ca/munro5/MalanimaItalyPricesWages.pdf> (accessed 10 May 2013). See also Goldthwaite 1980, 436–439 (appendix 3); and Goldthwaite 2009, 613 (table A.1), which regrettably does not inform the reader that the mean wages are those for unskilled labourers, not those for master building craftsmen. For comparable real wage evidence in Flanders, see Munro 2009, 27–32 (tables 1.5–1.7).

⁷⁸ See Munro 1990, 41–52; 1999b, 1–74.

⁷⁹ See Munro 2008, 97–182.

⁸⁰ See Melis 1962a, 219–243; Munro 2005, 431–484. For Wervik

woollens, see above nn. 29, 75.

⁸¹ See in particular Lopez 1959, 50–63; Lopez and Miskimin 1962, 408–426; Miskimin 1976, 116–163; Bois 2000; Seibt and Eberhard 1984; Van der Wee and Peeters (1970), 100–128; Munro 1983b, 235–250; 1994b, 147–195.

⁸² For the silk industry, see Goldthwaite 2009, 282–296, 336–340; Muthesius 2003, 325–354; Demo 2006, 217–243; and especially Dini 1993, 91–123; Molà 2000; Molà *et al.* 2000.

⁸³ See in particular, Munro 2003b, 228–324; 1997, 35–127; 1994, 377–388; 1991, 110–148.

⁸⁴ See Munro 1999b; 2003b, 269–288, 292–296; see also n. 99 below.

⁸⁵ See above, pp. 123–124.

⁸⁶ Munro 1978, 118–169; 1983, 13–70; 2003a, 181–227; 2007b, 55–95; 2009, 1–73.

⁸⁷ See Munro 2005, 431–484.

⁸⁸ See Munro 2011, 423–476; and sources cited in n. 84 above, no. 99 below.

⁸⁹ For a detailed history of the wool trade and export taxes, see Lloyd 1977, 144–256, esp. 225–256; Barnes 1918, 137–177; Ormrod 1991, 149–183; Munro 1973, 38–29; 2003b, 278–285.

⁹⁰ See the sources cited in n. 89; for the statute, see Great Britain, Record Commission 1810–22, vol. II, 8: statute 2 Ricardi cap. 3 (of 1378).

⁹¹ See sources cited in n. 89 above.

⁹² See Munro 2012d, 331 (table 26); 2003b, 308–311 (tables 5.5–5.6). The estimates for Ghent are a mean of the two sets of drapery tax farms.

⁹³ Munro 1977, 256 (table 13.2: Leuven in 1434 and 1442: 76.2% and 68.8%); Munro 1983a, 52 (table 3.12: Ypres, 1501).

⁹⁴ See above, pp. 124–126, and [Table 9.1](#). We do not have similar evidence for production costs in Florence's *Arte della Lana* (let alone for the San Martino sector); but for evidence on the costs of English and other wools in Prato's cloth industry in the 1390s, see Munro 2012a, 114–115, 191–192 (tables 6–7).

⁹⁵ For the decline of the English wool trade from the later 14th century, see Lloyd 1977, 257–287; Munro 1973, 1–9, 65–285.

⁹⁶ Lopez 1953, 161–168; Philips and Philips 1997; Munro 2005, 431–484; 2012a, 103–107.

97 See Orlandi 2010, 377–384. The Catalan branch of Prato’s Datini firm was one of the major Italian buyers in the 1390s; and the wools came from the region bordered by Madrid, Zaragoza, Valencia, and Tortosa. For Spanish wools in Milan, see Santoro 1968, 179 (doc. no. 10); Munro 2012a, 106.

98 For the various price lists, see: Melis 1962, 488 (doc. no. 350: Aug. 1390); 536–537, 542, and table facing 554; 1974, 241–251; Heers 1955, 192–195; Santoro 1968, 179 (doc. no. 10: 1375); Rossini and Mazzaoui 1969–1970, 571–624; Origo 1963, 69–70, 74–76. See also Munro 2012a, 104–107.

99 The new English fiscal burdens were the Calais Staple and Bullion Laws. For the *Nouvelles Draperies* and Spanish wools, see Munro 1973, 65–179; 1999b, 44–45, 60–66; 2003a, 186–191; 2003b, 249–262, 286–290; and especially Munro 2005, 431–484.

100 See above pp. 123–124.

101 These Italian wools came chiefly from the Abruzzi region: L’Aquila, Narni, Orvieto, Perugia, Terni, Veterbo. See Hoshino 1980, 210–211, 233–236, 279; Casale 2004, 551–572.

102 See Delumeau 1975, 71–72: stating that Rome’s population grew rapidly from c. 20,000 in 1450 to 55,000 in 1526–1517, thus well more than doubling; and doubling again to 100,00 by 1600. See also Goldthwaite 2009, 52, 273–274; Nicholas 2003, 19 (fig. 1.3): estimating Rome’s population in 1500 at 50,000; and Malanima 2013, 6 (Italian Urban Population 1300–1861 Database): estimating Rome’s population at 30,000 in 1400; 55,000 in 1500; and 98,000 in 1600.

103 Hoshino 1980, 286–287 (tables xlii–xliii). England and Flanders, in striking contrast, accounted for only 821 English broadcloths and 805 Flemish woollens of the total sold in Rome during this quarter century. For scarlets, see above n. 20.

104 Hoshino 1980, 239–244: estimating 4286 San Martino woollens (from English wools) and 12,858 Garbo woollens, from other wools (chiefly *matricina*). The same figure of 17,000 bolts for 1488 is cited in Goldthwaite 2009, 278 (table 4.1).

105 Hoshino 1985, 118, n. 2, and 120 (table 1). See also Hoshino 1980, 270, citing the testimony of the Levant-based merchant Benedetto Dei: 8000 bolts exported to Ottoman markets in 1470; 7500 bolts in 1471; 8000 in 1472; but only 3300 in 1474, and 3000 bolts in 1476.

106 Munro 2012a, 107–114. In the 1460s, *matricina* wools, though cheap, cost more than did Spanish wools, indicating that in so far as the latter were available they were still of poor quality.

107 See Munro 2005, 438–440, 469–472; 2012a, 109–114.

108 See Munro 2012a, 109–181; 2007b, 907–962.

Chapter 10

1 This paper is based on Baur 2013 and extended in some points.

2 Stromer 1978, 83.

3 *Ibid.*, 21; Kalkar 1881–1907, Vol. 4, 639–640.

4 Funk 1965, 66; Irsigler 1968, 117; Irsigler 1979, 84 and note 330; Nübling 1890, 142 note 1.

5 E.g. Lesnikov 1973, 548; Schütt 1960, 155.

6 Stieda 1921, XXX.

7 Lübben and Schiller 1878, 26.

8 Bastian 1935–1944, Vol. 1, 166; Koppe 2006, 288; Stromer 1978, 85.

9 Stieda 1921, No. 33, 42.

10 *Ibid.*, No. 29, 3.

11 The centres of silk production were in the German speaking area: Cologne, Zurich und Konstanz (Koch 1907, 1–2; Pohl 2005, 703); Kießling 1984, 175–176 mentions Augsburg fustian production “mit ihren Hilfgewerben als Leitsektor der wirtschaftlichen Entwicklung” (177). He does not mention silk.

12 Lesnikov 1973, 481.

13 Stieda 1921, No. 39, 54.

14 Stein 1903, No. 558, 440.

15 Galster 1953, No. 97, 667, No. 99, 685.

16 “three Augsburg Fardel, half ox and half lion”; Stieda 1921, No. 116, 139; No. 42, 56; No. 145, 16 (in order of the citations).

17 Christensen 1904, 468; Kalkar 1881–1907, Vol. 3, 690; Bennike and Porsmose 1991, 464.

18 Kolderup-Rosenvinge 1824, 535; Molbech 1866, 91; Nielsen 1885, 173.

19 Kalkar 1881–1907, Vol. 3, 690.

20 For a short overview over the export of oxen as one example of Danish export see Poulsen 2003, 569–575.

- 21 Simon 2006, 29, 2).
- 22 Orduna 1995, 253–256.
- 23 Christensen 1904, 306 (*olmerdug*); Kalkar 1881–1907, Vol. 4, 639 (*ulmerdug*), Vol. 3, 690–691 (*sardug*); Nielsen 1872–1879, Vol. 1, No. 112, 149–151 (*sardug*).
- 24 Kolderup-Rosenvinge 1824, 206.
- 25 Egeberg 1917–1919, 171.
- 26 Nielsen 1872–1879, Vol. 2, No. 318, 268.
- 27 Kerridge 1985, 124–125; Stromer 1986, 72.
- 28 Boot 1970, 29, 56.
- 29 Nübling 1890, No. 12, 29–33 (*Wollschauerordnung*); No. 22, 54–55 (similar case), No. 19, e.g. 40–41, §1, 2, 6–8; Stromer 1978, 21; Tietzel 1988, 11.
- 30 Mazzaoui 2009, 63–69; Jenks 2005, 59.
- 31 Aubin 1967, 655–656; Funk 1965, 105; Sakuma 1993, 131; Stromer 1978, 92–127.
- 32 Irsigler 1975, 252–253; Irsigler 1979, 21–26; Stromer 1978, 61–62.
- 33 Stromer 1978, 15.
- 34 Mazzaoui 1981, 138–139; Mazzaoui 2009, 75–76.
- 35 Jenks 2005, 59; Stromer 1978, 86.
- 36 Galster 1953, No. 99, 685.
- 37 Clasen 1995, 378; Kießling 1984, 175–176; Kießling 1987, 264–265.
- 38 Mazzaoui 1981, 142–143; Mazzaoui 2009, 78.
- 39 Boot 1970, 29; Stromer 1978, 86.
- 40 Ammann 1955, 293.
- 41 Irsigler 1975, 252–253; Irsigler 1979, 21, 26.
- 42 Mazzaoui 2009, 69, 78–80.
- 43 Boot 1970, 33–34; Stromer 1978, 27–28.
- 44 The whole production process is described in: Funk 1965, 27–61; Stromer 1978, 22–23.
- 45 Kuske 1917–1934, Vol. 1, No. 1000, 148–149; a similar case: No. 1002, 349.
- 46 Kießling 1984, 172; Lengle 1984, 67.
- 47 Geffcken 2002, 70–73 (*Welser-Brun-society*), 82, 126–127, 129 (*Bartholmäus Welser and sons*).

- 48 Irsigler 1985, 89–90; Stieda 1921, No. 77, 89–90, No. 78, 90, No. 79, 91 (letters written from Augsburg).
- 49 Irsigler 1973, 311; for the Venetian Trading Company see Kluge 2013.
- 50 *Ibid.*, 307.
- 51 Stieda 1921, No. 29, 37.
- 52 Bastian 1935–1944, Vol. 1, 174–178; Kießling 1984, 175; Stromer 1978, 36–37.
- 53 “gein Frankenf^eurtt an di Oder oder gein Stetyn oder gein dem S^eünn oder wo er w^eant, da er ez allerpestt verdreiben m^eü^eg”
- 54 “an dy See”; Bastian 1935–1944, Vol. 1, 176, Vol. 2, 72–75 (citation on p. 72); Stromer 1978, 42.
- 55 Bastian 1935–1944, Vol. 1, 74; Kießling 1997, 194, 201.
- 56 Ammann 1955, 306; Rothmann 1998, 400; Voges 1988, 67.
- 57 Ammann 1955, 297–299; Voges 1988, 57–58.
- 58 Bastian 1935–1944, Vol. 1, 174–175; Rothmann 1998, 141.
- 59 Funk 1965, 97; Rothmann 1998, 143; for cloth trade at the Frankfurt trade fairs see also Rothmann 2011, 111–141 and the paper of Thomas Ertl in this book.
- 60 Irsigler 1971, 344–346.
- 61 ‘Grundlage für den Frankfurter Messehandel der Kölner’; *Ibid.*, 359.
- 62 Kuske 1917–1934, Vol. 1, No. 470 II., 160.
- 63 *Ibid.*, Vol. 3, No. 1, 5–7 (selling of English cloth), 9 (buying of fustian); Irsigler 1971, 360.
- 64 Kuske 1917–1934, Vol. 1, No. 931, 322.
- 65 Koppe 2006, 24, 27 (Frankfurt citizens Hans Lemmechin, Henne Großjohann (before 1351 Braunschweig citizen) and Dyderich Lemmichin), 99–103 (Frankfurt citizens Johan and Contze Luneborg), 173 (Mainz citizen Tylo Rese).
- 66 Koppe 2006, 173; Stieda 1921, No. 33, 42, No. 37, 50.
- 67 Röhrig 1959, 299 (about the autor), 336–337 (buying), 349 (mentioning Matthias), 303 (explanation Röhrig’s to Matthias).
- 68 Christensen 1904, 27, 201, 255, 295, 359, 379, 380 and note a; Nordmann 1933, 56, 73–74; Nordmann 1937, 130; Röhrig, 1959, 303–305; Wernicke 2000, 275.
- 69 Höhlbaum *et. al.* 1882–1916, Vol. 8, No. 797, 502–503.

- 70 Böhmer and Techen 1871/1898, Vol. 3, No. 700, 760.
- 71 Kuske 1917–1934, Vol. 1, No. 977, 366, No. 989, 343, No. 1148, 397.
- 72 Höhlbaum *et. al.* 1882–1916, Vol. 11, No. 443 II, 306 (export to England); Kuske 1917–1934, Vol. 2, No. 154, 80.
- 73 Höhlbaum *et. al.* 1882–1916, Vol. 5, No. 508, 260–261; Kuske 1917–1934, Vol. 1, No. 427, 147 (Franciscus dei Fossato); Pohl 1971, 484.
- 74 Kuske 1917–1934, Vol. 1, No. 311, 105–106, No. 312, 106–107, No. 327, 111, No. 940, 325.
- 75 *Ibid.*, Vol. 3, No. 1, 9.
- 76 Höhlbaum *et. al.* 1882–1916, Vol. 5, No. 416, 161.
- 77 Stieda 1921, No. 38, 53 (from Frankfurt), No. 38, 53, No. 39, 54, No. 40, 54, No. 42, 56, No. 104, 123 (not explicitly mentioned as Upper German fustian), No. 536, 514.
- 78 *Ibid.*, No. 145, 165–166, No. 509, 509–510, No. 520, 504, No. 521, 505, No. 524, 507, No. 526, 508, No. 534, 513, No. 536, 514, No. 538, 515.
- 79 Lesnikov 1973, 52, 85, 317, 338–339, 355, 367, 371, 482; for the different entries' character see Tophinke 1999, 162–175.
- 80 Stieda 1921, No. 29, 37.
- 81 Irsigler 1979, 84.
- 82 Irsigler 1972, 77; Irsigler 1979, 85.
- 83 Irsigler 1979, 86–87.
- 84 Irsigler 1971, 377–388, 380; Irsigler 1972, 76.
- 85 Böhmer and Techen 1871/1898, Vol. 10, No. 119, 123; Höhlbaum *et. al.* 1882–1916, Vol. 8, No. 1109, 663–664.
- 86 Böhmer and Techen 1871/1898, Vol. 3, No. 7, 5.
- 87 Höhlbaum *et. al.* 1882–1916, Vol. 3, No. 682, 483 [4.]; Schütt 1960, 155.
- 88 Böhmer and Techen 1871/1898, Vol. 10, No. 132, 136.
- 89 *Ibid.*, No. 161, 170–171.
- 90 *Ibid.*, No. 292, 306; see also Wernicke 2000, 274.
- 91 Helbig 1952, No. 170, 134.
- 92 Langer 1972, 202–203; Langer 1973, 138.
- 93 Langer 1972, 198–199; Langer 1973, 199–211; Westermann 1987, 521–540.

94 Simon 2006, 29, 2).

95 Eiden 2002, 78; Straube 2003, 667–668; to the rise of Leipzig's trade fair see Straube 1997, 100–103.

96 Posern-Klett 1868, No. 384, 316.

97 *Ibid.*, No. 383, 311–312.

98 *Ibid.*, No. 526, 435.

99 Neukam 1967, 218; Pohl 1967/68, 109–110.

100 Lechner 1935, No. 143, 105.

101 Höhlbaum *et. al.* 1882–1916, Vol. 9, No. 558, 437, 440–441.

102 Vogtherr 1996, 246.

103 Galster 1953, No. (59.) V., 232, No. 74, 282, No. 76, 409, No. 92, 569.

104 In addition to the above mentioned examples: Galster 1953, No. 93, 640, No. 88, 501, No. 64, 239–241, 773; Sejdelin 1873, No. 839, 929.

105 Enemark 1971, Vol. 1, 181 (flocks of horses); Enemark 2003, Vol. 1, 115 (export of oxen), 174 (biographical information); Poulsen 1988, 199 and note 328 (wine and cloth).

106 Galster 1953, No. 93, 613, No. 100, 690

107 Enemark 2003, Vol. 1, 180, 187, more details to the brothers' business 337–338, 340.

108 *Ibid.*, 522.

109 Enemark 2003, Vol. 1, 522 (Lübeck citizen); Galster 1953, No. 99, 672 (selling of fustian).

110 Enemark 2003, Vol. 1, 175–176, 183, 346, 410, Vol. 2, Bilag 47, 307; Galster 1953, No. 88, 466; to this: Enemark 2003, Vol. 1, 171; Poulsen 1988, 224 (The term *sardug* might be the author's translation from the Middle Low German *Sardok* to Danish as the source is a tax record from Gottorf, see also Schwetlik 1961, 83).

111 Galster 1953, No. 97, 665–667, No. 98, 669, 671, No. 99, 683, 687

112 *Ibid.*, No. 99, 672.

113 Christensen 1904, 271

114 *Ibid.*, 399–400; While in 1506 51 ells, three whole fustians and an unknown amount of fustian are listed, only three ells, one whole fustian and five times an unknown amount are mentioned in 1508, see Christensen 1904, 397, 399–400, 406, 419–420 (1520), 205, 208–211, 232–233 (1506), 277, 279, 299, 302, 307–308 (1508).

- 115 Nielsen 1872–1879, Vol. 2, No. 548, 447, Vol. 4, No. 676, 622, No. 710, 643–646.
- 116 Christensen 1904, 205 (Hans Stryg from Odense, see Enemark 2003, Vol. 1, 206; Engelbert Fincke from Copenhagen), 208–209 (Jørgen Knudsen perhaps from Ribe, later Aalborg citizen, see Enemark 2003, Vol. 1, 459), 220 (Hans Bogbinder from Copenhagen, see Christensen 1904, 431; Enemark 2003, Vol. 1, 407; Jahnke 2000, 59) 221 (Arnt Hake from Copenhagen, see Enemark 2003, Vol. 1, 407), 244 (Michill Storm from Lübeck, see Enemark 1971, Vol. 2, 299), 271, 279, 306–307 (Jørgen Kremer, probably from Ribe, see Kromann 1974, 13–14; see also Enemark 2003, Vol. 1, 452), 336, 358 (Herman Vale from Odense), 349, 385 (Peter Kellerbreker from Odense, see Enemark 2003, Vol. 1, 276, 403), 349, 378 (Lytke Kræmer from Copenhagen), 564 (Peder Laurens from Odense)
- 117 Christensen 1904, 27, 287, 290,
- 118 *Ibid.*, 336 (*sardug* for servants), 358.
- 119 Dahlerup 1983, 173–184; Enemark 1971, Vol. 1, 106, 340; Enemark 2003, Vol. 1, 279, 434, 436–438.
- 120 Enemark 2003, Vol. 1, 206.
- 121 Bennike and Porsmose 1991, 245; see Enemark 2003, Vol. 1, 151, 345; In Queen Christina's court accounts he is also named Henrik Kremer, see Christensen 1904, 111, 116, 118–119.
- 122 Enemark 2003, Vol. 1, 406; Poulsen 1988, 195; A list of ox merchants who traded also with cloth can be found in Enemark 2003, Vol. 2, Bilag 47, 305–307.
- 123 Poulsen 1988, 34.
- 124 Poulsen 1988, 201; Poulsen 2003, 569–575; Wiese 1966, 34.
- 125 Höhlbaum *et. al.* 1882–1916, Vol. 8, No. 1094, 657.
- 126 See Baur 2013, 100–105.
- 127 Nielsen 1872–1879, Vol. 1, No. 112, 149–151.
- 128 Enemark 1994, 249; Jahnke 2000, 172–176.
- 129 Jahnke 2000, 69, 94, 138, 141, 154; Kattinger 1999, 23.
- 130 Andersen 1954, 248; Bager 1977, No. 5, 40, No. 6, 45, No. 12, 87, No. 20, 119, No. 23, 133, No. 27, 165, No. 35, 200, 202; Bager 1981, 50.
- 131 Christensen 1914, No. 62, 84.
- 132 Melefors 1991, 125, 186.

Chapter 11

1 Bodemann 1883, 75–76.

2 Irsigler 1979, 12.

3 Ammann 1955, 66; Ammann 1958, map 15.

4 With regard to Westfalia: Seeger 1926, 64–65.

5 Schmidt 1878, 133 no. 248; Kober 1908, 82–83.

6 Krause and Kunze 1900, 138 no. viii.

7 Bolland 1960, 190 no. 86.

8 For the successful effort of the Stralsund clothiers on the island of Rügen (1408), the treaty with the Abbey of Neuenkamp 1446 and the intervention in Grimmen 1447, cf. Fritze 1976, 51–52.

9 E.g., with regard to Stendal 1231 Riedel 1838–1863, vol. 15, 8–10 nos 8–9; to Salzwedel 1233 or 1488 vol. 14, 1 no. 10 and 418–419 no. 495; to Frankfurt/Oder in the 13th century and 1401 vol. 23, 5 no. 4 and 139 no. 195; to Perleberg 1345 and 1447 vol. 1, 143–144 no. 39, 190–191 no. 107 and vol. 3, 448–449 no. 181; to Havelberg 1310, 1365, 1411 and 1442 vol. 3, 287–289 no. 1, 301–303 no. 17–18; to Neuruppin vol. 4, 288 no. 8. Cf. Helbig 1973, 26–27.

10 With regard to Lübeck c. 1300, Rörig 1971, 99–100.

11 With regard to Hamburg 1489 Bolland 1960, 191 no. 86 art. 4.

12 Cf. Kaeber and Hirschfeld 1911, 162–163 no. 1; Herborn 1981, 137–139; 1987/88, 59–60.

13 Loesch 1907, 64–65 no. 25.

14 Lau 1911, 68–69 no. 40 and 168–171 no. 121; Holbach 1993, 143–144.

15 Lau 1911, 176 no. 124 (1498).

16 Prieur and Reininghaus 1983, 51–67 and with regard to the problem 19.

17 *Ibid.*, 17, 57.

18 Dietz 1982/83, 68–71.

19 Büscher 1884, 19–23.

20 Ribbeck 1915, 412 and 490.

21 Nigge 1912, 82–85, no. 3; Lüdicke 1903, 7–20; Reininghaus 1989, 193–194.

22 Lüdicke 1930, 101–102 no. 76.

- 23 Die Urkunden des kölnischen Westfalens 1908, 483 no. 1070; Kober 1908, 74. With regard to 1371 Holbach 1993, 153; Dösseler 1988, 12.
- 24 Reininghaus 1989, 246.
- 25 Wigand 1858, 139.
- 26 Krieg 1931, 115; Holbach 1993, 155.
- 27 Finke 1894, 324 no. 540; Overmann 1901, 100 no. 75.
- 28 Prinz 1972, 337–338 no. 706; Reese 1894, 79–80 no. 81.
- 29 Holbach 1993, 146, 149–152.
- 30 Fink 1927, 122–125 no. 138; Philippi 1890, 45 no. 39, 67 no. 55. C. in 1500 the drapers (*drappener*) of Bremen produced so-called ‘*Siegeltuch*’ as well; Holbach 1993, 173.
- 31 Hansisches Urkundenbuch 1876–1936, vol. 3, 476–477 no. 677 footnote 1; Fink 1927, 145–146 no. 158; Holbach 1993, 156–158 with map.
- 32 Hänselmann 1873–1900, vol. 1, 10 no. 5, 14 no. 7, 16 no. 10, 26 no. 19; Vollmer 1913, 8 and 29–37 in general.
- 33 Schulz 1931, 67.
- 34 Nirnheim 1895, lxix.
- 35 Bode 1900, 996; Schulz 1931, 63.
- 36 Stadtarchiv Braunschweig G VIII no. 147(B). In the 16th century the Brunswick cloth-makers were not only allowed to cut their own cloth, but also cheap foreign products (*dat ein jeder betalen kann*). This was done with regard to upper Saxonian and Silesian products; Spiess 1966, 258. Cheaper products from the surrounding Hanse region might also have been included.
- 37 Fiedeler 1876, 34–37.
- 38 Arrangements for the cut of cloth had already been made here in the mid-13th century; Koch 1913, 4–5.
- 39 Anyhow, in Quedlinburg in the order of the guild confirmed by the abess in 1478 there were rules concerning the quality, although the cloth produced there did not gain much importance; Janicke 1882, 6–9 no. 571; Militzer and Przybilla 1980, 79–80. For Halberstadt, where in 1291 any right of the cutting of cloth was bound to a membership in the merchants’ guild, see above.
- 40 Doebner 1887–1893, vol. 3, 699–700 no. 122; with regard to the clothiers Müllerleile 1913; Uthmann 1957, 48–52.

41 According to a contract from 1411, the clothiers of the new part of the town of Hildesheim were allowed to cut besides the so-called *molendok* and the English *kyrsey* only the local white and grey cloth as well as textiles produced in Göttingen; Doebner 1887–1893, vol. 3, 200–201 no. 485; Tuckermann 1906, 106.

42 In 1446 the members of the guild were already allowed to cut and sell the locally produced good grey and white cloth, but to withdraw from the trade with other cloth: Doebner 1887–1893, vol. 4, 530 no. 624.

43 *Ibid.*, 552–553 no. 653.

44 *Ibid.*, 623–625 no. 730.

45 Hansisches Urkundenbuch 1876–1939, vol. 6, 293 no. 520; Schmidt 1867, 64–65 no. 104.

46 Recess 1893, 415 no. 609. With regard to Mühlhausen Langer 1972, 201.

47 Jaeger 1885, 433 no. 521.

48 Ropp 1907, 411 no. 236.

49 Wehrmann 1874, 492.

50 Bolland 1960, 134 no. 57 art. 63.

51 The early mentioning of cotton already in 1311 is surprising; Lambert 1870, 86–87 (mentioning cloth from Aachen and Cologne as well); Langer 1975, 108.

52 Herquet 1874, 21 no. 77; Langer 1975, 108.

53 Lambert 1870, 118–119 (der *burger czeychene*); Langer 1973, 84–85. In 1323 in Mühlhausen the Gewandschneider had their rights also translated into German (Herquet 1874, 534–535 no. 1056; Quellen zur älteren Geschichte 1949, 147–148 no. 130c). A main problem in the 14th and 15th century was the extent to which the wool weavers were permitted to cut out cloth. They were only allowed to at annual fairs. In the beginning of the 15th century the trade of the cloth producers was even more restricted. According to a decree by the council they even had to leave their own cloth which had not been sold at the fair to the merchants; Bemmann 1909, 18 and 30–31; Langer 1975, 108; Langer 1973, 85–86.

54 Beyer 1889, 247–248 no. 375. According to orders of the 14th century the cut of cloth was only allowed in the licenced cloth stalls; Neubauer 1916, 139–140. For the cloth-makers of Erfurt, who in 1516 obviously were in a period of crisis, it was important that they could also cut their

own products at home and were not dependent on the sale in the special stalls; Neubauer 1914, 88–90.

55 Here also conflicts between weavers and clothiers existed; Langer 1975, 109–110; 1972, 197.

56 Müller 1962, 36–37, 41–42, 179–180; Stromer 1976, 212.

57 Riedel 1838–1869, vol. 23 4 no. 3; Kober 1908, 87.

58 Fidicin 1837b, 7–9 no. 7; Fidicin 1837a, 193–194 no. 26.

59 Holbach 1993, 170. However, urban cloth-makers (*lakenmaker*) were allowed to produce unsealed cloth for foreign cloth producers (*fremden doockmakers*); Riedel 1838–1863, vol. 16, 124–126 no. 154.

60 Here mayors and the council bestowed statutes on the wool weaver or clothier. These did not only control the admission to the trade, but also made statements on the quality and enacted the guarantee of a length of 28 ells per cloth for the merchant; Riedel 1838–1863, vol. 2, 48 no. 39.

61 Riedel 1838–1869, vol. 3, 456–457 no. 197.

62 *Ibid.*, vol. 15, 12–13 no. 14.

63 Götze 1873, 332–336.

64 *Ibid.*, 335. An indication of a good development in production and trade is the elector's concession to the clothiers of Stendal in 1495, who were allowed to have a third journeyman, *damit sie Ir hantwerck dest statlicher treiben mochten*; Riedel 1838–1863, vol. 15, 438 no. 488. In 1508 the margraves returned the right to the clothmakers to cut their own white and grey as well as foreign dyed cloth in different villages and towns, likewise in Tangermünde; Riedel 1838–1863, vol.15, 462–464 no. 525. Compared with that, the weavers of Tangermünde in 1506 were only allowed to sell their own white and grey sheets by the ell, but not foreign ones; Riedel 1838–1863, vol. 16, 124–126 no. 154.

65 Riedel 1838–1863, vol. 15, 8–9 no. 8; Quellen zur älteren Geschichte 1949, 148–150 no. 131a; Müller-Mertens 1956/57, 22–23.

66 Riedel 1838–1863, vol. 14, 1 no. 1. On the development there Müller-Mertens 1956/57, 23–24.

67 Riedel 1838–1863, vol. 1, 366–367 no. 2; Müller-Mertens 1956/57, 24.

68 Riedel 1838–1863, vol. 23, 5 no. 4; Müller-Mertens 1956/57, 24.

69 The procedure followed there seems to have been different in earlier times; Riedel 1838–1863, vol. 1, 126–127 no. 7; Müller-Mertens 1956/57, 24.

- 70 Riedel 1838–1863, vol. 3, 287–289 no. 1; Müller-Mertens 1956/57, 24.
- 71 Within a zone of three miles; Riedel 1838–1863, vol. 9, 33 no. 48; Jeroch 1927, 44; Müller-Mertens 1956/57, 24. Indeed, here in 1422 the old urban guild of cloth-makers did get the right to sell their own products in detail.
- 72 But in 1256 in Pritzwalk the cut of cloth was bound to the consent of the merchants guild, and according to that, it was at least theoretically possible for others, too; Riedel 1838–1863, vol. 3, 342–343 no. 9; Müller-Mertens 1956/57, 24, also for regulations in Neuruppin in the 14th century.
- 73 Götze 1873, 336.
- 74 In Lüneburg in 1410 the wool weavers already got a limited permit from the council to also produce short cloths; Bodemann 1883, 248.
- 75 Bodemann 1883, 249–253.
- 76 *Ibid.*, 253.
- 77 Janicke 1884, 194–195.
- 78 Wehrmann 1874, 495–496.
- 79 Urkundenbuch Lübeck, vol. 10, 242 no. 232; Holbach 1993, 176. For measures in the 16th century Wehrmann 1874, 300–312, 485–489.
- 80 *Ibid.*, 496.
- 81 Mecklenburgisches Urkundenbuch 1890, vol. 15, 197–199 no. 9048; Stieda 1886, 152–153. With reference to the cloth of Rostock Holbach 1993, 177–178. Further evidence of the importance of this branch of production is the complaint about the apparent increase of weaving also in the surroundings of the town in the 14th century. The rural production was seen as an unwelcome competition with urban craft. At least for the spinning of wool it was intended to prevent an external access to the urban resources of workers; Stieda 1886, 153.
- 82 Holbach 1993, S. 177. In 1399, at least in Anklam several kinds were mentioned and a standard measure of 32 ells is given; Bruinier 1960, 9–11.
- 83 Bunge and Hildebrand 1853–1910, sect. 1 vol. 9, 414 no. 562.
- 84 Holbach 1993, 181–183.
- 85 Voigt 1848, 185–187 no. 138.
- 86 Töppen 1878, 95–97 no. 64.
- 87 *Ibid.*, 332 no. 270 S. 332, about improper use *ibid.*, 466 no. 360.

88 *Ibid.*, 468 no. 362.

89 *Ibid.*, 420 no. 332.

90 For the cut of cloth in Wroctlaw: Heck 1979, 52–53.

91 So in 1430 at the eldersmen of Bruges a Hinrik Sten from Reval is certified the sale of 23 cloths from Nordhausen *binnen der Narwe* for the delivery of wax which failed to occur; Hansisches Urkundenbuch 1876–1936, vol. 6, 563–564 no. 1010; Langer 1975, 107. In 1469 a Gerwin Buck from Münster argued with Reval about a cloth trade with the Russians, in which besides Vorlander also products from Erfurt had been sold; Bunge and Hildebrand 1853–1910, sect. 1 vol. 12, no. 687 S. 382; furthermore Langer 1975, 109; on cloth from Erfurt and Vorland also Holbach 1993, 165–166. Likewise in connection with the conflict, cloths from Dortmund are mentioned as traditional trade goods in the East; Hansisches Urkundenbuch 1876–1936, vol. 11, 831–832 no. 1288 with footnote 2. On the naming of cloth from the Netherland Hansetown of Kampen in 1500 Heckmann 1995, 253 no. 158.

92 In 1407 a letter from Hartwig Stenhus in Riga to Sivert Veckinchusen confirms the receipt of 45 cloths from Hildesheim and 8 cloths from Wismar. Those from Hildesheim could be sold for 66 Mk., those from Wismar for 19 Mk.; Stieda 1921, 14 no. 15.

93 Nirrnheim 1895, 32 no. 204.

94 Brandt 1979, 321.

95 Piekosinski 1882, 375 no. 262.

96 Hänselmann 1873–1900, vol. 2, 517 no. 876.

97 Gerbing 1900, 128. In the 14th century also in Mühlhausen the sale was distinguished between a cloth from Gent at 6d and one from Aachen at 4d; Lambert 1870, 121.

98 In 1398 a *terling* of cloth from Magdeburg was 47½ lb in Lübeck; Bruns 1900, lixf., also for the price in 1454.

99 In 1494 cloth from Lübeck was 36 lb; 17 white cloths from Dortmund were 180 lb in 1495; Bruns 1900, lx; Bruns 1907, 460; Vogtherr 1996, 137, 196, 535, 740, 989.

100 With better conditions concerning the customs, the import of demanded cloth could be promoted, like it was done by Havelberg in Brandenburg for the popular cloth from Wittstock from the vicinity that, like products from Kyritz and Perleberg, were also sent to Lübeck; Helbig 1973, 27.

- 101 For the export of cloth from Lübeck to Bergen around 1398–1400
Bruns 1900, xlii.
- 102 See map in Holbach 1993, 158.
- 103 Bruns 1907, 460; Vogtherr 1996, 1947–1948.
- 104 *Ibid.*; Bruns 1907, 465–466.
- 105 And from Mölln.
- 106 Bruns 1907, 473–475.
- 107 Siewert, Geschichte Rigafahrer, 187, for Mölln in the late 14th century: Vogtherr 1996, 103, 353, 359, 651, 703, 740, 869, 1104, 1132, 1178, 1182, 1187, 1569.
- 108 Jenks 2012, 5 no. 35 and 16 no. 119. However, a tariff of toll in Hamburg from the 15th century shows that besides English and Rhenian cloth also cloth from Mühlhausen and Brunswick passed through here; Pitz 1961, 37 no. 46. That cloth was exported from Mühlhausen via Hamburg is also verified by urban budget bills from there. On that and generally on cloth from Mühlhausen Langer 1975, 107. According to a customs roll of the beginning of the 14th century, cloths from Brunswick, produced in the district of Hagen, as well as other goods were also transported from Lüneburg to Celle or Gifhorn; Hänselmann 1873–1900, vol. 2, 262 no. 508; Vollmer 1913, 98.
- 109 Among other things cloth from Brunswick belonged to an inheritance; Simon 2006, 186 (168, 9).
- 110 In a legacy on Schonen in 1466 textiles from Nordhausen are mentioned; Urkundenbuch Lübeck, vol. 11, 77; no. 77; Langer 1975, 107; Langer 1973, 135.
- 111 Bruns 1900, 42 no. 62.
- 112 So in Bergen the citizen of Lübeck, Henning van Zalderen, left 20 cloths from Stendal in 1451 and Hans Rese in 1471 3 white cloths from Mühlhausen as well as 20 cloths from Stendal for charity. In 1520 Titeke Roleves planned to supply relatives with 7 cubits of cloth from Herford; Bruns 1900, 89 no. 140, 114; no. 176, 143 no. 218.
- 113 Bunge and Hildebrand 1853–1914, sect. 1 vol. 11, 325 no. 385. In 1504 Hans Meckinck ordered in Reval that two grey cloths from Lübeck should be given to some deserving poors as material for capes and coats; *ibid.*, vol. 4, 514 no. 656.
- 114 Bunge and Hildebrand 1853–1914, sect. 2 vol. 2, 525 no. 672.

115 Ibid., sect. 1, vol. 7, 178 no. 249. A bill from 1504 also verifies a corresponding practice: here even half a stack of cloths from Rostock is mentioned, more exactly 4 grey and 6 white ones, each piece for the price of 6½ Mk.; Bunge and Hildebrand 1853–1910, sect. 2 vol. 2, 529 no. 679.

116 Alberts 1960, 20–21, 43, 52–53, 78.

117 Bunge and Hildebrand 1853–1914, sect. 1 vol. 9, 75 no. 120.

118 Bulmerincq 1909, 317.

119 Doeblner 1887–1893, vol. 5, 220, 234, 303 and more.

120 Schulz 1931, 29–30.

121 With reference to a cloth order for this place also with particulars about wages and a remark on a cloth seal Meister 1890, 109–111. The bills from Ilseburg mention better grey cloth from Wernigerode as well.

122 Helbig 1973, 145.

123 Normally grey cloth.

124 Bruns 1900, lx.

125 Cf., e.g., Abraham-Thisse 1993; Abraham-Thisse 2002, 183–189.

126 Rudolf Häpke has already mentioned in his article ‘*Der Untergang der Hanse*’ that in the beginning of the modern era wool from Westphalia, Hildesheim, Brunswick and Lüneburg was of importance for the producers of cloth in Valenciennes or Tournai; Häpke 1923, 22. For the wool trade of Hildesheim in the 16th century Gebauer 1950, 89. A sign of the artificial shortage of wool in Brunswick is indeed the prohibition of the purchase by people without guild membership; Spiess 1966, 263. In 1568 the wool weavers from Lüneburg strongly complained about a too large export of wool and repeated this in 1576 referring to wool from Mecklenburg as well; Bodemann 1883, 254–255; Ehrenberg 1896, 124, 303–304. Likewise the margraves of Brandenburg issued several orders against wool purchase and export from their own counties in the 16th century and so did elector Joachim in 1535 in a prohibition against foreign wool traders (Riedel 1838–1863, vol. 23, 450–451 no. 445). In 1581 Johann Georg ordered that wool should not be bought up and exported by tradesmen, nor that craftsmen are allowed to buy more than they needed for their personal use. At the same time clothiers who had a licence to trade wool were allowed to use the raw material only for a *reciprocum commercium* with the cloth producers in the form of the putting-out system; Jeroch 1927, 45–46. He repeated the prohibition of the wool export in 1590 on the complaint of the cloth-makers from

Salzwedel; Stölzel 1901, 162–165 no. 84.

127 In the 16th century Hanseatic cloth could no longer prevail against other products on the markets to some extent. This applies, e.g., to cloth from Brandenburg in Poland, where products from Upper Saxony, Silesia and Bohemia were dominating; Helbig 1973, 143. A similar development can be assumed for products from Brunswick; Spiess 1966, 258.

128 Holbach 1993, 146.

129 Holbach 1999, 247; Holbach 2001, 369, 381–382.

130 Neitzert 1987, 337–339; Holbach 1993, 163–164; Holbach 2001, 370–371.

131 The initiator who appeared here and offered to make cloth in the style of Haag, Kampen and Zwolle, came from Göttingen as well; Hölscher 1909, 258.

132 Ropp 1892, 174. The publicly financed construction of a fulling mill can be placed into such a context of urban support as it is verified from the town of Brandenburg in 1422 or from Goslar in 1474; Riedel, Cod. Dipl. 1838–1863, vol. 9, 118–119 no. 156; Cordes 1954, 119. On the establishment of an urban sheep farm and a house for dyeing in Havelberg in 1553 Riedel 1838–1863, vol. 3, 315 no. 31. The role of emigrants for religious reasons in the 16th century on the textile production in different Hanseatic towns (Wesel, Hamburg, Stade) should only be mentioned in passing; e.g., Prieur and Reininghaus 1983, 22–26; Kleßmann 2002, 114–115, Rüdiger 1874, 210–211; Wohltmann 1948, 109–110. For developments in Wismar in the 16th century Techen 1929, 79.

133 Holbach 2000, 184–185.

134 An order from Zerbst, which did not belong to the Hanse, seems to be of interest in this context as well. It verifies again, how often locally produced cloth, among which were also Hanseatic ones, appeared on the markets or were well known apart from the dominating and established cloth produced for long distance trade. In Zerbst it was allowed to sell besides cloth from Dessau those from Aachen, Burg (probably a small place near Hannover) as well as Rhenian cloth and also products from Magdeburg by the ell, but no cloth made in Thuringia, Luckau or Görlitz or those manufactured in the Harz mountains; Kindscher 1858, 129 and 135.

135 Relating fulling mills in the 15th and 16th century Fiedler 1974, 214.

136 Here the last two are the cheapest at 4½ sch. Lüb. per ell. In comparison red, brown, black, blue and green cloth from Hamburg – in fact a great choice – were 9–25s, green, blue, black and red cloth from Hildesheim were 9–12 ½s, cloth from Magdeburg was 10–12s, cloth from Mühlhausen was 8–9s and cloth from Lüneburg was 8s; Ehrenberg 1896, 287 (1575/93). In addition to that also products from Meißen, Mariendorf, Neustadt, Gehrden and Walsrode are named. As in 1599 in Mühlhausen were still 188 wool weavers, the continuing significance of the Thuringian cloth production becomes evident; Langer 1975, 10; 1972, 197.

137 There the corporation of merchants travelling to England in 1530 had concluded a contract with a dyer from Antwerp and a cloth finisher to make the two settle in town; Rüdiger 1874, 283–294. With regard to the year 1551 Lappenberg 1861, 448. The number of dyers increased to eight up to 1570 and the dyeing and dressing of white English cloths took on such a dimension that the English complained, e.g., in 1555; Ehrenberg 1896, 129; Holbach 1993, 186f. When in 1562/63 not less than 4204 sheets were finished in Hamburg, this also shows, like the increase of local clothiers from 32 to 57 within a time span of only three decades, the grown importance of this line of production for the town; cf. Ehrenberg 1896, 78; 1885, 14.

138 Also the shearers from Emden, that put in an application for admission into the Hanse at quite a late point in time, made profit from the import of raw cloths by the Merchant Adventurers. The finished products were transported to the Frankfurt Fair in units from 500 up to 2000 per year by local merchants; Hagedorn 1910b, 7.

139 Höhlbaum 1903, 543–545, appendix no. 110*; Ehrenberg 1896, 162. On delivery contracts with merchants in the interior land Hagedorn 1910a, 220; 1910b, 34.

140 Höhlbaum 1903, 547–548 appendix no. 111* and 854, appendix no. 222.

141 Ehrenberg 1885, 19.

Chapter 12

1 Wyrozumski 1999, 79–84, 136–14, 258–264, figs 30, 80, 163; Baczkowski 1999, 11–14, fig. 1.

2 Sage 1936, 322–332.

- 3 Stanclik n.d.; Nahlik 1958.
- 4 Maik 1991a.
- 5 Kamińska and Nahlik 1958.
- 6 Maik 1988, *passim*.
- 7 Kościński and Paner 2005, 11–47.
- 8 Małowist 1951, 1–20.
- 9 Małowist 1954.
- 10 Paner *et al.* 2009.
- 11 Maik 2009.
- 12 Maik 2000; 2003, 65–66.
- 13 Sage 1936, 330.
- 14 Bukowska-Gedigowa and Gediga 1986, 338–340.
- 15 Kamińska and Nahlik 1958, 44–48.
- 16 Cardon 1999, 401–406, fig. 145.
- 17 Nahlik 1965, 59–88; Maik 1991b.
- 18 Kamińska and Nahlik 1958, 82–85; Maik 1991a, *passim*.
- 19 Maik 2009, 112–114.
- 20 Maik in press b; 2011, 215–222, 362–363; 1988, *passim*; 1997.
- 21 Tidow 1980; 1982; 1992.
- 22 Maik 1997, 31–32.
- 23 Maik 1988, 155–158, fig. 106; 2011.
- 24 Wyrozumski, 1963, 20.
- 25 NKR I, No 474–478; Stadtbuch no 1174, 1184, 1279, 1609.
- 26 Semrau 1922, 63.
- 27 Goerlitz 1937, 101–102; 1943, 130–131; Młynarska-Kaletynowa 1986, 34, Goliński 1997, 187–188, 194–195.
- 28 Goerlitz 1937, 101–102.
- 29 Semrau 1922, 63.
- 30 Maik 1997, 42–44.
- 31 Turnau 1962, 231.
- 32 Semrau 1929, 18; Młynarska-Kaletynowa 1986, 59–64; Goliński, 1997, 187–195, 421–433; Mikulski, 1999, 90–94; Turnau 1987, 94.
- 33 APGd. 300, C, 966.
- 34 APGd, 492, 8.

35 Maik in press a.

36 Maik 2009, 114; 1990, 122, figs 15.3–15.4.

37 Maik 1997, 30, photo 7; 1993, 217.

Chapter 13

1 The *Bibliographies of European Textiles, 1100–1750* compiled by John H. Munro give an impressive account of the literature and source editions concerned with the pre-modern development of this key industry, see <http://www.economics.utoronto.ca/munro5/BibEuropeanTextiles.htm>.

2 Holbach 1997, 595–598; Sprandel 1997, 598–602; Munro 2003, 181–324; Muthesius 2003, 325–354.

3 Abraham-Thisse 2002, 183–207; Munro 2008, 97–181; Jahnke 2009, 74–89.

4 Dollinger 1998, 298–299.

5 Dollinger 1998, 186.

6 Dascher 1976, 274; von Stromer 1976, 207.

7 Hohls 1924; 1926, 116–158.

8 Holbach 1993, 135–190; Jenks 1996, 358–374.

9 Eberhardt 1996, 33, 35, 42.

10 Schütte 1993, 140–141.

11 Harding 1987, 212; Cobb 1995, 7–9; Jenks 1996, 358–374; Sutton 1999, 166.

12 Gras 1918, 66–89.

13 Jenks 1992, 21–33.

14 To be published in 2015 by the Hanseatic History Association.

15 See for the early documented linen imports to London and for trade in woolen cloth from the Hanseatic Area Huang 2013, 92–93, 315–324.

16 Harding 1987, 212.

17 Cobb 1995, 8–9.

18 Huang 2013, 81–82, appendix I, table 3, 361; Jenks 1996, 372.

19 The London Customs Accounts, forthcoming. I thank Stuart Jenks very much for putting his upcoming edition at my disposal as this source is crucial to my research.

20 Huang 2013, appendix I, table 3, 361–366.

21 Kiesselbach 1907, 109; Hansisches Urkundenbuch I, no. 277;

- Braunschweiger Urkundenbuch II, no. 158; Göttinger Statuten, no. 201.1.
- 22 Hormuth *et al.* 2006, 49.
- 23 Huang and Jahnke 2012, 62–68, 79–81.
- 24 Hansisches Urkundenbuch IX, no. 558; X, no. 704–705.
- 25 For a collection of references on the distribution of an exporting textile industry throughout the Hanseatic Area see Huang 2013, 295–310.
- 26 Hansisches Urkundenbuch III, no. 497.47.
- 27 Hansisches Urkundenbuch III, no. 499.
- 28 Hanserecesse I.3, no. 239.8.
- 29 Irsigler 1975, 251–257, 273–283.
- 30 Dollinger 1998, 292.
- 31 Liv-, Est- und Curländisches Urkundenbuch, I.3, no. 1095.
- 32 Hansisches Urkundenbuch I, no. 436.
- 33 Cobb 1995, 9; Harding 1987, 212.
- 34 Bridbury 1982, 86–93.
- 35 Boone 1995, 80.
- 36 Huang 2013, 92–109.
- 37 Sutton 1999, 166.
- 38 Hirsch 1857, 256–257.
- 39 Huang 2013, 110–113.
- 40 Pitz 1961, no. 4.
- 41 Jenks 1996, 359.
- 42 Jenks 1992; Lloyd 1991, 109–234.
- 43 Cobb 1995, 8–9; Huang 2013, 133–136.
- 44 Cobb 1995, 9.
- 45 This is especially true for the Westphalian linen production and its certification in 15th century Herford, Osnabruck and Munster, see Huang 2013, 137–155
- 46 Göttinger Statuten, no. 73.
- 47 Göttinger Statuten, no. 159.
- 48 Hansisches Urkundenbuch IV, no. 807; IX, no. 558; XI, no. 802 *et al.*; Hanserecesse I.4, no. 645; I.5, no. 61.10; I.7, no. 467.13 *et al.*
- 49 Hanserecesse II.2; no. 329.12; no. 354.9 *et al.*
- 50 For a discussion of supra-regional if not hanseatic characteristics and mercantile or hanseatic influence on the establishment of a standardised

production see Huang 2013, 311–321.

51 Göttinger Statuten, no. 225.

52 Göttinger Urkundenbuch, no. 104.

53 Göttinger Statuten, no. 225.

54 Göttinger Statuten, no. 225.

55 Göttinger Statuten, no. 225.

56 Acten der Ständetage Preussens, no. 64B.

57 Danziger Pfundzollbuch, no. 25, 119, 814, 830, 1318.

58 Bolton 1996, 17–78.

59 Dyer 1989, 175–177, 205–207; Bolton 1996, 56; Kowaleski 2006, 247–250.

Chapter 14

1 For a summary of historical research on Frankfurt's medieval trade fair with a special focus on the financial transactions carried out at the fair cf. Rothmann 1998. For a broad collection of essays and illustrations on various topics connected to the Frankfurt Fairs from the beginning to the 20th century cf. Koch 1991. The overall significance of trading fairs for the European late medieval and early modern economy is discussed in Cavaciocchi 2001.

2 *'So sind auch die Messen und Märkte zu Franckenfurd von Gnaden und Freiheiten des Heiligen Römischen Reichs dem selben Reich zu Ehren und um eines Gemeinen Nutzens willen gesetzt und gemacht lange Jahre und Zeit löblich gehalten und nach Franckefurd gelegt, als an eine Stadt, die den oberen und niederen und auch anderen um gelegene Dutschen Landen baß gemyttelt und gelegen ist den kauffluden zu Wasser und zu Lande.'* Rothmann 2011, 111.

3 Rothmann 2000b.

4 Martin Luther, Tischrede: *'Alles bringen wir also um, und verspendens und wenden es unnütz an mit überflüssiger Kleidung, Seidenwerk, Fressen und Saufen. Das wissen die Fugger und die frankfurtische Messen wohl, wie wir das Unsere vernarren und verschleudern.'* Eisenbart 1962, 73.

5 For Frankfurt's economical history cf. Dietz 1921.

6 For the fair's origin and early history cf. Brübach 1996.

7 Boehmer and Lau 1901, vol. I, no. 122, 62.

8 Boehmer and Lau, 1905, vol. II, no. 606, 458.

9 Bergier 1963; Dubois 1976.

10 On the significance of trading fairs for the late medieval and early modern economy, see the essays on fair cities in different parts of western Europe in Koch 1991, vol. I, 1–190.

11 For a list of cities' and merchants' first appearance at the Frankfurt Fairs, mostly in the first decades of the 14th century, cf. Rothmann 1998, 146–166.

12 Holtfrerich 1999.

13 For varying sorts of late medieval commercial networks cf. Fouquet and Gilomen 2010.

14 The spectrum of traded goods is presented in Koch 1991, vol. II 122–252 and vol. III, 75–239.

15 For all sorts of remnants of the cloth and textile trade, from illustrations in merchant books to textile stamps to extant textiles, cf. Koch 1991, vol. II, 148–176.

16 For a similar approach cf. Naud 1967, 217–251.

17 For the cloth catchment area of cloth traded at Frankfurt's Fairs cf. Rothmann 1998, 146–166.

18 *'Nach dem man gar viel gwands gen Franckfurt pringtt all da zu verkauffen, so ist zu wissenn, daz gewonlich auss ainer ieden statt die tuch da hin pringent, die handt ire tuch besonders faill bey einander in ainem besondern hauss, also das ainer, die Tuche, die er begertt zu kauffen, bey einander angeboten findet'*. This phrase from a merchant's book is cited by Rothmann 2011, 115. For accommodation of the fairs' visitors cf. Bauer 1991.

19 Ammann 1958; 1954.

20 Spary 1991, 177; Rothmann 2011, 121.

21 Spary 1991, 178–181.

22 Rothmann 2011, 121.

23 Rothmann 2011, 122. For the twofold feature of medieval fairs as regional and international commercial events cf. Epstein 1994.

24 Ammann 1954.

25 For a summary of research on cloth-producing regions in Central Europe cf. Holbach 2011.

26 On the trade of wool and dyestuff in Frankfurt cf. Dietz 1910, Vol. I, 183–185, 229, 291–292.; Dietz 1921, Vol. II, 254–257.

27 Aerts and Munro 1990. For northwestern European woollens in Central

Europe cf. Ammann 1954.

28 Rothmann 2011, 123. For one case study cf. Chorley 1998.

29 Brand 1993; Munro 1999.

30 For the surge of England's wool and cloth export and manufacturing in 15th and 16th century cf. Munro; Munro 1999, 58–60.

31 Herzog August Bibliothek Wolfenbüttel, Cod. Gulf. 18.4 Augusteus 4, fol.36v–40r. For this work cf. Weinzheimer 2002; Rothmann 2011, 122.

32 *‘Die Lindischen Tuche, die pringt man meist auss Engelandt, wie woll ir vil in Brabant gemacht werdenn. Jedoch so komen die pesten auss Engelandt(en) und man verkaufft si zu Franckfurt alle nach dem stück und handt doch nit ain leng. Dann man streicht sy alle und wass ainem d(a)z selb mass gibtt, das bezalt er unnd man rechnet 40 ell(e)n für ain stück und zu Nürnberg 32 und zu Augspug 36 ell(e)n und wass ain stuck minder(er) od(er) mer hatt, dass selb bezaltt man. [...] Es ist auch ainss vil pesser dan das ander und sündelich die in Engelandt an der woll geferbtt werdenn, sind mehr Geld wert, dan die man am tuch in Prowandt ferbtt. Und sie haben kein besonderes zaichen, als manchmal ain rossen zu ainem sigell unnd an der and(er)en saitten Engelandtt, und darumb so merck ain ieder was er kauff, dan es ist gar grosser unterschied darin, also d(a)z ain tuch vann ain güldin bis in 10 guldin besser ist dann das andere, darnach wisse dich zu richten.’* Herzog August Bibliothek Wolfenbüttel, Cod. Gulf. 18.4 Augusteus 4, fol. 33v. and 34r. Cf. Rothmann 2011, 122.

33 Rothmann 2011, 123. For the varying qualities and prices of Flemish cloth exports cf. Chorley 1987.

34 Irsigler 1971.

35 Rothmann 2011, 123.

36 For cloth market conditions and entrepreneurial policies in the Low Countries at the end of the Middle Ages cf. Stabel 2000.

37 Munro 1994, 160–168.

38 Weissen 2001; Balbi 2007.

39 On textiles and late-medieval consumption cf. Munro 1998.

40 The provisioning of aristocratic courts and households in the late Middle Ages has been studied intensively in recent years. Cf. Seyboth 1995; Vale 1995; Aymard and Romani 1998; Fouquet *et al.* 2008.

41 For noble customers at the Frankfurt Fairs at large cf. Rothmann 1998, 500–505.

42 Mersiowsky 2000.

43 Rothmann 2000a. General remarks on the changing financial administration at aristocratic courts around 1500 in Mersiowsky 2008.

44 Rothmann 2011, 126–141.

45 Rothmann 1997.

46 For the papal court as one example cf. Delort 1962. For a survey of functions textiles played in late medieval courtly representation cf. Ertl 2007.

47 Frieling 2006.

48 Rothmann 2011, 129–132. For the landgraves' activity at the Frankfurt Fairs in the 16th and 17th century cf. Westermann 1978; Krüger 1980, 189–198; Becker 1991.

49 Textiles remained the single most valuable expenditure in the decades around 1600 as well. Cf. Becker 1991, 331–332.

50 Rothmann 2011, 132. For monetary transactions and financing at the Frankfurt Fairs cf. Rothmann 1998, 197–487.

51 Rothmann 1998, 118–122.

52 For a listing of the textile brokers at the Frankfurt Fairs at the beginning of the 15th century cf. Rothmann 1998, 126–128; Rothmann 2011, 118–120.

53 Rothmann 2011, 132–141.

54 Rothmann 2011, 133, n. 55.

55 Rothmann 2011, 133, n. 54.

56 Rothmann 2011, 133, n. 54.

57 On the loss of market shares to the Leipzig Fairs cf. Eiden 2001.

58 Andreas Meusel/Musculus: *‘Wenn Deutschland noch länger so bleiben und fortfahren werde, so dürfte zuletzt kein pfennig mehr drin bleiben, weil es die Kaufleute und Krämer zu Wagen und zu Schiffe überall hinausführten und dagegen uns Hosenlappen, Karteck, Seide, Worstedts und andere Dinge mehr hereinbrächten und man könnte wohl sagen, Frankfurt am Main wäre bei jetziger Zeit das Tor, durch welches alles Geld aus Deutschland nach fremden Nationen ginge’*. Eisenbart 1962, 74.

59 Among new publications in the field cf. for instance Welch 2005.

Chapter 15

1 Gill 1967, 86.

2 Berg 1999, 64.

3 Steegen 2006, 317, blithely remarks: [Maastricht] “merchants and shopkeepers never experienced difficulties in ordering goods and acquiring supplies for their businesses”, even in wartime, but does not waste a single further word on the subject.

4 Shammas 1990, 83, for instance, shows that the East India Company imported tea from the 1660s, but only sporadically. It was only with the opening of trade with Canton in 1713 that shipments became regular and reliable. Within ten years, tea had become an article of mass consumption, meaning that – as Shammas defines it – 25% of the adult population drank it at least once a day.

5 For a conspectus of the various positions see de Vries 2008, 37–39.

6 Cox 2000, 76–115; Berry 2002; Walsh 1995; 1995a; 2003; Wallis 2008; Stobart 2004, 175–177; 2007, 15–17, 116–139; 2008, 84–87.

7 de Vries 2008, 169.

8 McKendrick 1982, 78; Stobart 1998; 2004, 178–181; 2007, 59–67, 79–110; 2008, 80–83; Glennie and Thrift 1996; Cox 2000, 66; Beckett 2000.

9 McKendrick 1982, 78–85, 100–194; Mui and Mui 1989, 225–248; Berg 1999, 70–71; 2005, 270–278; Cox 2000, 90–92, 107–114; Stobart 2007, 171–188.

10 Walsh 1995, 171–175; 2003, 62–72; 2006; Berry 2002, 379–382; Cox 2000, 139–145; Berg 2005, 268–269; Stobart 1998; 2005; 2007, 105–106, 142–170; 2008, 92–96.

11 Cox 2000, 116–145, 197–222, Glennie and Thrift 1996, 34–36; Berry 2002, 386–390; Walsh 1995, 173–175; Stobart 2004; Berg 2005, 267–268.

12 Spufford 1984, 58ff; Shammas 1990, 227; de Vries 2008, 140; Mui and Mui 1989, 148.

13 Willan 1976, 55ff.

14 Keene 2006; Stapel 2006; Britnell 1986; 2006; Harding 2006.

15 Shammas 1990, 235, 259–260; Spufford 1984, 62, 80–82, 90; Willan 1976, 61, 98; Cox 2000, 61–62.

16 TNA:PRO, CP 40/704 m 311–3. I am grateful to Susanne Jenks for providing me with this reference.

17 Walsh 1995a, 157; 1995b, 105.

18 Wallis 2008, 32–33, 41.

- 19 Freedman 2008, 117.
- 20 Shammas 1990, 227; Stobart 2004, 180.
- 21 Mui and Mui 1989, 9.
- 22 Cox 2000, 190–191.
- 23 Stobart 1998.
- 24 Raven 2005, 81–82, 86; Everitt 1979, 91–93; Bogart 2005; 2009; 2011; Chartres 1977; Gerhold 1988; 1996; Albert 1972; Pawson 1977.
- 25 Willan 1976, 41.
- 26 Willan 1976, 12.
- 27 Masschaele 1994; 1997, 188, 231; Britnell 2009, xx, 14–15, 20.
- 28 Britnell 2009, xx, 14.
- 29 Willan 1972, 41; Cox 2000, 181, quoting Defoe, *Complete English Tradesman* (1726).
- 30 Spufford 1984, 16, 18, 80, 82; Shammas 1990, 237, 255, 293, but cf. 242; Cox 2000, 192.
- 31 Cox 2000, 179, 184–185; Willan 1976, 91, 93–95.
- 32 Chaudhuri 1965, 11–12, 28 (summary of the Company's charter, which is printed in full in Birdwood 1893, 163–189).
- 33 Chaudhuri 1965, 33.
- 34 Chaudhuri 1965, 39.
- 35 As soon as the *Ascension* entered the Thames in June 1603, the Company had various warehouses in the City examined, in order to determine which was most suitable for storing the *Assension's* cargo of pepper, cloves, cinamon and gum lac. Ten days later three committee members were nominated to have the cellars of the Royal Exchange suitably prepared: Stevens 1886, 245, 248. By 1614 the Company owned its own warehouse in Leadenhall: Chaudhuri 1965, 156.
- 36 Chaudhuri 1965, 144, 152.
- 37 Chaudhuri 1965, 154.
- 38 Birdwood 1893, 27–30, 42–45; Chaudhuri 1965, 154.
- 39 On 8 Dec. 1603, the Company stated that – together with imports from the Low Countries – sufficient pepper had already been distributed to satisfy domestic demand for at least a year: “a greate quantitie of the Companies’ pepper alreedy disposed into many handes by a general dividient agreed upon amongst themselves before your lordship’s [viz. the Lord Treasurer’s] lettres came to our handes, besides other great

quantities of pepper brought out of the Lowe Countries and both of them soe passed from hand to hand from the merchaunt to the Grocer and from the Grocer to the chapman in the countrey that by this meanes there is sufficient pepper alreadie delivered out abroad in the Cittie and countrie to forbear any further sale for one yeare att the least”: Birdwood 1893, 44.

40 The London market was awash in pepper: Chaudhuri 1965, 154.

41 This idea had been touted about from the beginning. In 1603, indeed, the Lord Treasurer had allowed that the ban on pepper sales which he sought to enforce at the king’s behest was only to apply to domestic sales and would by no means exclude the export of pepper overseas by the Company or its members (30 Nov. 1603): Birdwood 1893, 43.

42 Chaudhuri 1965, 155.

43 This system was maintained until 1627: Chaudhuri 1965, 147, 151.

44 This was in great contrast to the early years. In 1603, the Company stated to the Lord Treasurer that it had offered £500 worth of pepper to any member who could offer £100 in cash but had found but few takers: Birdwood 1893 45; Chaudhuri 1965, 154.

45 Chaudhuri 1965, 158.

46 Chaudhuri 1965, 143.

47 On the early history of the Merchant Adventurers in Antwerp see – *pars pro toto* – van der Wee 1963, II, 51 n. 137, 74, 103, 123, 165, 186; de Smedt 1950, 82ff.; Ramsay 1986, 1–15.

48 Willan 1959, 49; de Smedt 1954, 353–68.

49 The Calvinist revolt of 1566 and its brutal suppression by the Duke of Alva at the head of Spanish troops in the following year led to a temporary exodus of native and foreign merchants from Antwerp (van der Wee 1963, II, 236; Ramsay 1986, 34–53), and conditions for the Merchant Adventurers were not improved by the ensuing Anglo-Spanish tensions which led to a mutual trade embargo between England and all lands under the dominion of Philip II of Spain (1568–73): Willan 1959, 50; Ramsay 1986, 95ff. The sack of Antwerp by Spanish troops in 1576 drove most foreign merchants away for good (van der Wee 1963, II, 254–256), even if the Merchant Adventurers waited until 1582 to transfer their court out of Antwerp for good (*ibid.*, 259).

50 Emden 1564–1567, 1579–1587, 1598–1601; Stade 1587–1598, 1601–1611; Middelburg 1578–1587: Baumann 1990, 111–137; Ramsay 1986,

63, 121–122; 1962, lxxxiv–lxxxv.

51 Ehrenberg 1896, 143, 157.

52 van der Wee 1963, II, 238; Ehrenberg 1896, 78, 128, 280–281.

53 van der Wee 1963, II, 236. In Nuremberg, too, a cloth-finishing industry sprang up in the late 1560s and drew its supplies of unfinished English cloth from Hamburg: Sakuma 1993, 72–78. On cloth-finishing in Germany generally see Baumann 1990, 44–101.

54 Ramsay 1986, 136. The products the English missed most in Hamburg were Basque iron ore, Spanish olive oil, sugar and spices.

55 On the course of the negotiations (and the role of Elizabeth, her government and diplomats) see Ramsay 1986, 124.

56 The text of the charter is printed in Ehrenberg 1896, 312–326. For a comparison between the rights of the Merchant Adventurers in Antwerp and Hamburg see Ramsay 1986, 126–127.

57 Ehrenberg 1896, 325–326.

58 On the rights of the Hanse in England see Jörn 2000, 240–247; Ramsay 1986, 188; Dollinger 1989, 441–443. Most notably, the Hanse merchants were excluded from trading in Blackwell Hall in London, where all country cloth manufacturers had to sell their cloth. Trade with country clothiers in Blackwell Hall was from then on a monopoly of the Merchant Adventurers: Ramsay 1962, xxiii.

59 Ehrenberg 1896, 133–138.

60 The sunset clause in the 1567 charter had granted the Merchant Adventurers this final year to clear up their business: Ehrenberg 1896, 326. In fact, they managed to delay their departure until 12 Mar. 1579: Ehrenberg 1896, 138–147.

61 Emden was too close to the Spanish Netherlands to be commercially or militarily secure (Willan 1959, 51; Ramsay 1962, lxxxiv), and despite the influx of German merchants drawn in by the the Adventurers' imports of English cloth, its market was too small (Ramsay 1962, lxxxiv). Finally, the count of East Frisia, although initially most welcoming, became more and more importunate with his demands on the English when the Merchant Adventurers' charter came up for renewal in 1586 (Baumann 1990, 15–16).

62 Ehrenberg 1896, 152, 156, 162, 167, 169–170. One might also cite the remark of Lionel Cranfield's factor in Germany, Richard Rawstorm, in a letter of 22 Dec. 1601: "For if the worst should happen, which is to be

driven hence [i.e. out of Stade], I know the Hamburgers will willingly entertain us and suffer us to trade in their town at our pleasure” (Fisher 1966, 103).

63 Ehrenberg 1896, 171, 175–179, 182–183.

64 Baumann 1990, 153–154; Ehrenberg 1896, 184–185.

65 Baumann 1990, 16.

66 Friis 1927, 71–73; Baumann 1990, 268–269.

67 Ehrenberg 1896, 195.

68 Baumann 1990, 191; Ehrenberg 1896, 195, 200; Friis 1927, 71. The contemporary term for those trading outside the company was ‘interlopers’.

69 Ehrenberg 1896, 201. To encourage trade with England, the Emden council issued similar certifications from 1600: Baumann 1990, 230–231.

70 Ehrenberg 1896, 202 (Nov. 1598), 205–206 (1599).

71 Ehrenberg 1896, 205.

72 Friis 1927, 72–73. The agreement of 1602 between Cumberland and the Company had the added advantage of strangling the interlopers’s trade.

73 Ehrenberg 1896, 220; Baumann 1990, 16–17; Friis 1927, 74.

74 Ehrenberg 1896, 227.

75 Ehrenberg 1896, 228–229; Baumann 1990, 154–155.

76 Zins 1972, 166. The German market actually absorbed more cloth than that. Interlopers exporting to the Netherlands and Germany accounted for an additional 7.9%, and foreigners for 2.9% more. All in all, Germany and the Netherlands absorbed 70.6% of London’s cloth exports.

77 Baumann 1990, 268–269, 136.

78 Friis 1927, 74, 129.

79 Baumann 1990, 245.

80 This is certainly the impression one gains from reading Cranfield’s commercial correspondence: Fisher 1966.

81 For details see Baumann 1990, 234–276.

82 Baumann 1990, 239–240.

83 Friis 1927, 95–97 (exporters), Birdwood 1886, 1–4 (founding members); Raab 1967, 233–410. The 28,370 shortcloths these members exported amounted to 56.7% of the total.

- 84 Birdwood 1886, 1–4 (founding members); Raab 1967, 233–410.
- 85 Zins 1972, 113–117.
- 86 Zins 1972, 114–115.
- 87 Zins 1972, 125. In practice, this amounted to the right to confiscate one third of illicit cargoes: Fisher 1966, 205.
- 88 Zins 1972, 60.
- 89 On these convoluted negotiations, repeatedly scuttled by Danzig, see Simson 1916, Zins 1972, 67–73.
- 90 Simson 1916, 120–122; Zins 1972, 73. Although it was never ratified by the Polish crown, this privilege constituted the legal basis for the residence of the Eastland Company until 1628: Simson 1916, 140; Fedorowicz 1979, 229.
- 91 Zins 1972, 72; Simson 1916, 103.
- 92 Zins 1972 125 with n. 75, 132.
- 93 Zins 1972, 67.
- 94 Zins 1972, 126, 138–139; Fedorowicz 1980, 60–69.
- 95 Zins 1972, 126–128
- 96 Aside from the inconvenience of sailing all the way around the long peninsula (*‘Frische Nehrung’*) and then back west through the Frisches Haff to reach Elbing, paying customs at Pillau to the Duke of Prussia and in Elbing to the Polish crown, the town’s harbour was exceedingly shallow: Hinton 1959, 7; North 1991, 131; Fedorowicz 1980, 63–65, 156.
- 97 Fedorowicz 1979, 228.
- 98 Zins 1972, 153–286, exhaustively discusses English imports and exports.
- 99 Fedorowicz 1979, 225; Fisher 1966, 26, 31, 61, 75–76, 79, 130, 133, 135, 204.
- 100 Fedorowicz 1979, 225–226. Note that Danzig was only hostile to the English staple in Elbing, not to English trade in general. While it fought the Elbing staple tooth and nail, in order to force the English back to Danzig, it was anxious to attract the English back, but baulked at granting them the wide-ranging privileges they enjoyed in Elbing: Fedorowicz 1979, 221; 1980, 70–72. On the stop-and-go negotiations, the ineluctable consequence of the crucial contradiction in Danzig’s policy, see Simson 1916, 129–140; Fedorowicz 1979, 228–230; 1980, 132–157; Hinton 1972, 6, 27.

- 101 Zins 1972, 164, 168; Hinton 1959, 21; Fedorowicz 1980, 91–97.
- 102 Zins 1972, 166.
- 103 Zins 1972, 176, 180–181; Fisher 1966, 133, 135; Fedorowicz 1980, 94.
- 104 Fisher 1966, 177, 202.
- 105 Fisher 1966, 44, 131, 143.
- 106 Fisher 1966, 180–181, dated 14 Aug. 1607.
- 107 Fisher 1966, 192.
- 108 Birdwood 1886, 1–4 (founding members); Raab 1967, 233–410.
- 109 Wood 1935, 20. Neither the third (1600) nor the fourth (1605) charter affected the area of the Company's monopoly: Wood 1935, 36, 40; Ramsay 1957, 47.
- 110 Wood 1935, 17; Andrews 1984, 99.
- 111 On English exports to the Levant see Davis 1961, 118–123.
- 112 North 1995, 300–301, s.v. peso.
- 113 Wood 1935, 213; Andrews 1984, 99.
- 114 Ramsay 1957, 50–51. See also Wood 1935, 213; Braudel 1966, II, 393–394, 406.
- 115 Ramsay 1957, 50–51; 1962, lxxxvii; Braudel 1966, II, 393–394.
- 116 *Oxford English Dictionary*, s.v. a-napes, fustian A 1 c.
- 117 Andrews 1984, 97.
- 118 Chaudhuri 1965, 11–12.
- 119 Wood 1935, 24; Andrews 1984, 98; Chaudhuri 1965, 174–175, 204–205.
- 120 Chaudhuri 1965, 11–12; Wood 1935, 31.
- 121 Wood 1935, 31.
- 122 Birdwood 1886, 1–4 (founding members); Raab 1967, 233–410.
- 123 Wood 1935, 31.
- 124 One should remember that a significant number of the Company's shareholders were silent partners, who did not engage in trade: Chaudhuri 1965, 25, 33.
- 125 Berg 2005, 128, 141–142.
- 126 Kellenbenz 1956, 33–36; Dobel 1886.
- 127 Kellenbenz 1956, 29.
- 128 Kellenbenz 1956, 33–34.

[129](#) Kellenbenz 1956, 29–33; 1954, 159–162; Dobel 1886; Braudel 1966, II, 309–310; Häberlein 2002, 236–237; Hildebrandt 2002, 273.

[130](#) Kellenbenz 1956, 45; 1954, 93; Ehrenberg 1896, 296–297.